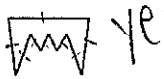
Name: Key Period: Score: _____ / 20

GEOMETRY HONORS: SEMESTER 2 FINALS REVIEW PACKET

1. Tell whether the figure is a polygon. If it is a polygon, name it by the number of sides.

a.  yes nonagon

b.  NO

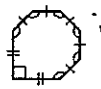
c.  NO

2. For a polygon to be regular, it must be both equiangular and equilateral. Name the only type of polygon that MUST be regular if it is equiangular. triangle

3. Tell whether each polygon is regular or irregular. Then tell whether it is concave or convex.

a.  irregular concave

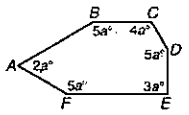
b.  regular convex

c.  irregular convex

4. Find the sum of the interior angle measures of a 14-gon.

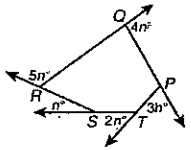
2160°

5. Find the measure of each interior angle of the hexagon.



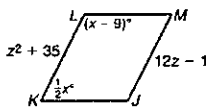
m∠A = 60°
m∠B = m∠D = m∠F = 150°
m∠C = 120° m∠E = 90°

6. Find the value of n in the pentagon.



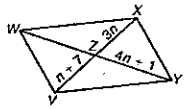
n = 24

7. JKLM is a parallelogram. Find the following measures:



a. $m\angle L =$ 117° b. $m\angle K =$ 63° c. MJ = 71

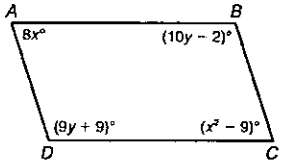
8. VWXY is a parallelogram. Find each measure:



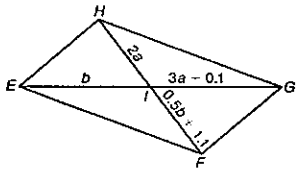
a. VX = 21 b. XZ = 10.5 c. ZW = 15 d. WY = 30

9. Three vertices of parallelogram ABCD are B(-3, 3) C(2, 7) and D(5, 1). Find the coordinates of A.

10. For each below, find which values of the variables make the quadrilateral a parallelogram.

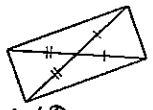
a. 

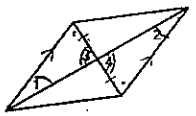
x = 9 , y = 11

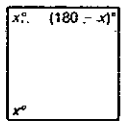
b. 

a = 2.3, b = 7

11. Determine whether each quadrilateral is a parallelogram or not. Justify you answers.

a.  NO

b.  NO

c. 

NO (only if x = 90)

12. Use SLOPES to determine whether quad. JKLM is a parallelogram: J(-4, -1) K(-7, -4) L(2, -10) M(5, -7)

$m_{\overline{JK}} = m_{\overline{LM}} = 1 \rightarrow$ same slope $\rightarrow$ ||

$m_{\overline{KL}} = m_{\overline{JM}} = -\frac{2}{3} \rightarrow$ same slope $\rightarrow$ ||

2 pairs opp. sides || $\rightarrow$ ||-gram

13. Use the LENGTHS OF THE OPPOSITE SIDES to determine whether quad. PQRS is a parallelogram:
P(2, 2) Q(1, -3) R(-4, 2) S(-3, 7)

$PQ = RS = \sqrt{26}$ → opp. sides ≅

$QR = PS = 5\sqrt{2}$ → opp. sides ≅

2 pairs opp sides ≅ → ll-gram

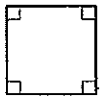
14. Use the LENGTHS AND SLOPES OF ONE PAIR OF OPPOSITE SIDES to determine whether quad. TUVW is a parallelogram: T(1.5, -2) U(1.5, 4) V(-0.5, 0) W(-0.5, -6)

$TU = VW = 6$ → opp. sides ≅

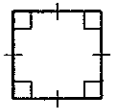
$m_{\overline{TU}} = m_{\overline{VW}}$ = undefined → vertical lines are ll

Same pair opp sides ≅ and ll → ll-gram

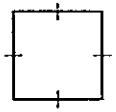
15. Tell whether each figure must be a rectangle, rhombus, or square based on the information given. Use the most specific name possible.

a. 

rectangle

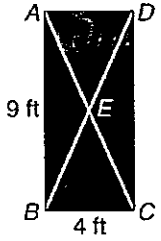
b. 

square

c. 

rhombus

16. A modern artist's sculpture has rectangular faces. The face shown here is 9 feet long and 4 feet wide. Find each measure in simplest radical form.



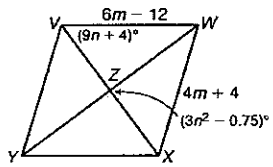
a. DC = 9 ft

b. DB = $\sqrt{97}$

c. AD = 4 ft

d. AE = $\frac{\sqrt{97}}{2}$

17. VWXY is a rhombus. Find each measure.



a. XY = 36

b. $m\angle YVX$ = 53.5°

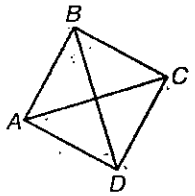
c. $m\angle YVW$ = 107°

d. $m\angle XYZ$ = 36.5°

18. The vertices of quad. JKLM are J(-2, 4) K(-3, -1) L(2, -2) M(3, 3). Use the DIAGONALS to show that this quad. is a square.

See last page

19. Determine whether each conclusion is valid. If not, tell what additional information is needed to make the conclusion valid.



a. **Given:** $\overline{AC}$ and $\overline{BD}$ bisect each other, and $\overline{AC} \cong \overline{BD}$
Conclusion: ABCD is a square.

NO - need to also know $\overline{AC} \perp \overline{BD}$

b. **Given:** $\overline{AC} \perp \overline{BD}$ and $\overline{AB} \cong \overline{BC}$
Conclusion: ABCD is a rhombus

NO - need to know $\overline{AC}$ + $\overline{BD}$ bisect each other

c. **Given:** $\overline{AB} \cong \overline{DC}$, $\overline{AD} \cong \overline{BC}$ and $m\angle ADB = m\angle ABD = 45°$
Conclusion: ABCD is a square

yes

d. **Given:** $\overline{AB} \parallel \overline{CD}$, $\overline{AD} \cong \overline{BC}$ and $\overline{AC} \cong \overline{BD}$
Conclusion: ABCD is a rectangle.

NO - need to know $\overline{AB} \cong \overline{CD}$

20. Use the DIAGONALS of the parallelogram with the given vertices to determine whether it is a rectangle, rhombus, or square. Give all names that apply.

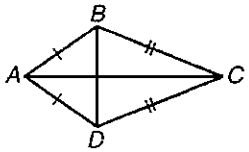
a. E(-2, -4) F(0, -1) G(-3, 1) H(-5, -2)

rectangle, rhombus, square

b. P(-1, 3) Q(-2, 5) R(0, 4) S(1, 2)

rhombus

21. In kite ABCD, $m\angle BAC = 35°$ and $m\angle BCD = 44°$. Find each measure.

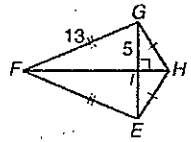


a. $m\angle ABD =$ 55°

b. $m\angle DCA =$ 27°

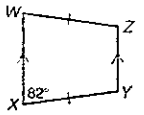
c. $m\angle ABC =$ 108°

22. Find the area of ΔEFG.



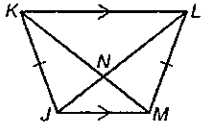
60

23. Find $m\angle Z$



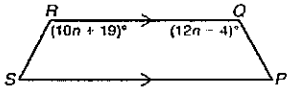
98°

24. KM = 7.5 and NM = 2.6. Find LN.



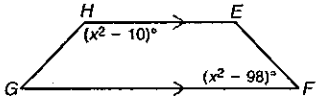
4.9

25. Find the value of n so that PQRS is isosceles.



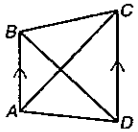
11.5

26. Find the value of x so that EFGH is isosceles.



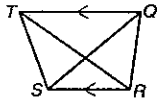
12

27. BD = 7a - 0.5 and AC = 5a + 2.3. Find the value of a so that ABCD is isosceles.



1.4

28. $QS = 8z^2$ and $RT = 6z^2 + 38$. Find the value of z so that QRST is isosceles.



$\sqrt{19}$

29. The ratio of the angle measures in a quadrilateral are 1:4:5:6. Find each angle measure.

22.5°, 90°, 112.5°, 135°

30. The ratio of the side lengths in a rectangle are 5:5:2:2 and its area is 90 ft². Find the lengths of the sides.

6 and 15

31. Solve each proportion for the given variable.

a. $\frac{28}{p} = \frac{42}{3}$

$p = 2$

b. $\frac{28}{24} = \frac{q}{102}$

$q = 119$

c. $\frac{3}{4.5} = \frac{7}{r}$

$r = 10.5$

d. $\frac{9}{s} = \frac{s}{25}$

$s = \pm 15$

e. $\frac{50}{2t+4} = \frac{2t+4}{2}$

$t = 3$ or $t = -7$

f. $\frac{u+3}{8} = \frac{5}{u-3}$

$u = \pm 7$

32. Given that $12a = 20b$, find the ratio of a to b in simplest form.

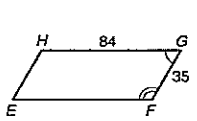
5 to 3

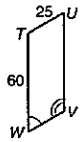
33. Given that $34x = 51y$, find the ratio x:y in simplest form.

3:2

34. Determine whether the polygons are similar. If so, write a similarity statement and give the similarity ratio. If not, explain why not.

a.



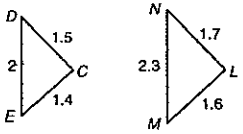


yes ~

EFGH ~ UTWV

$k = \frac{5}{7}$ (or $\frac{7}{5}$)

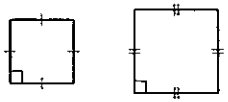
b.



NOT ~

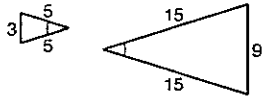
35. Tell whether the polygons are similar based on the information given in the figures.

a.



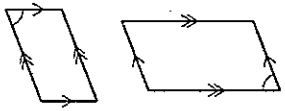
yes ~

b.



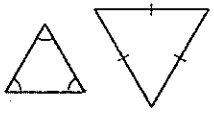
yes ~

c.



yes ~

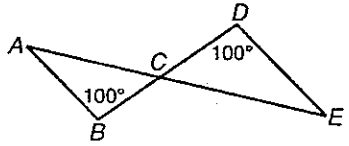
d.



yes ~

36. Explain why the triangles are similar and write a similarity statement.

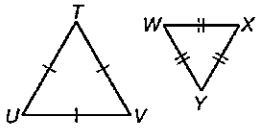
a.



yes by AA ~

$\Delta ACB \sim \Delta ECD$

b.

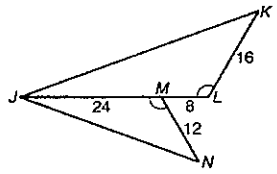


yes by AA ~ (or SSS ~)

$\Delta UTV \sim \Delta WXY$

37. Verify that the triangles are similar. Explain why. Write a similarity statement.

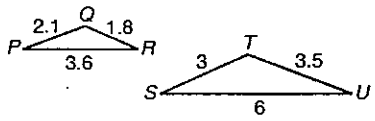
a.



yes by SAS ~

$\Delta JKL \sim \Delta JNM$

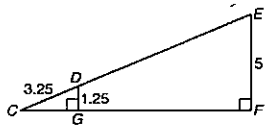
b.



yes by SSS ~

$\Delta PQR \sim \Delta UTS$

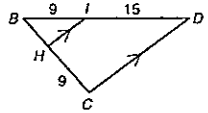
38. Explain why the triangles are similar. Then find DE.



yes by AA ~

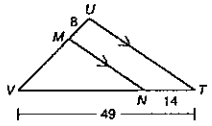
DE = 9.4

39. Find BH.



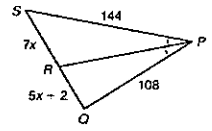
5.4

40. Find MV.



20

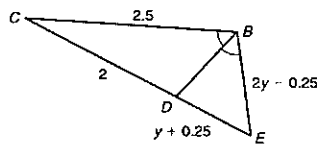
41. Find SR and RQ.



SR = 42

RQ = 32

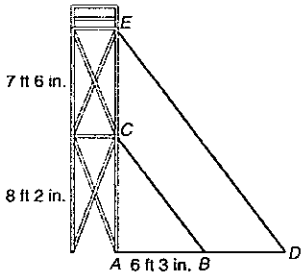
42. Find BE and DE.



BE = 1.25

DE = 1

43. A city is planning an outdoor concert for an Independence Day celebration. To hold speakers and lights, a crew of technicians sets up a scaffold with two platforms by the stage. The first platform is 8 feet 2 inches off the ground. The second platform is 7 feet 6 inches above the first platform. The shadow of the first platform stretches 6 feet 3 inches across the ground.



a. Explain why ΔABC and ΔADE are similar.

AA ~

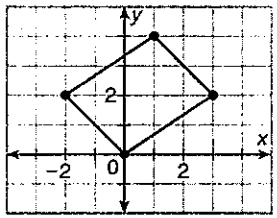
b. Find the length of the shadow of the second platform in feet and inches to the nearest inch.

12 ft 0 in

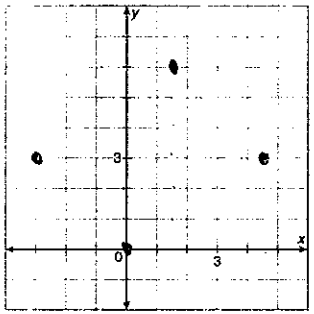
c. A 5 feet 8 inch tall technician is standing on top of the second platform. Find the length of the shadow the scaffold and the technician cast in feet and inches to the nearest inch.

16 ft 4 in

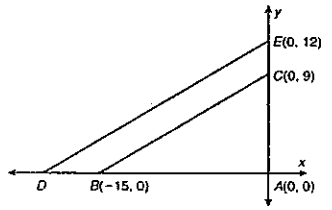
44. A jeweler designs a setting that can hold a gem in the shape of a parallelogram. The figure shows the outline of the gem. The client, however, wants a gem and setting that is slightly larger.



a. Draw the gem after a dilation with a scale factor of 1.5.



45. Given that ΔABC ~ ΔADE, find the scale factor and the coordinates of D.

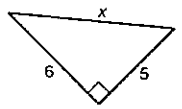


$\frac{4}{3}$ (or $\frac{3}{4}$)

D(−20, 0)

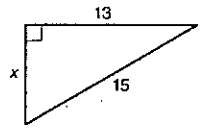
46. Find the value of x. Give your answer in simplest radical form.

a.



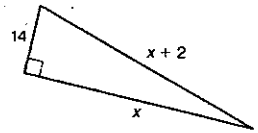
$x = \sqrt{61}$

b.



$x = 2\sqrt{14}$

c.



$x = 48$

47. The aspect ratio of a TV screen is the ratio of the width to the height of the image. A regular TV screen has an aspect ratio of 4:3. Find the height and width of a 42-inch TV screen to the nearest tenth of an inch. (The measure given is the length of the diagonal across the screen)

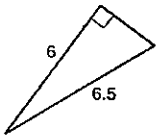
height = 25.2 in width = 33.6 in

48. A "wide-screen" TV has an aspect ratio of 16:9. Find the length of a diagonal on a wide-screen TV screen that has the same height as the screen in #47.

51.40 in

49. Find the missing side lengths. Give your answer in simplest radical form. Tell whether the side lengths form a Pythagorean Triple.

a.

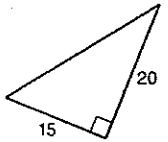


2.5

Not a triple

(but is a 5-12-13 w/

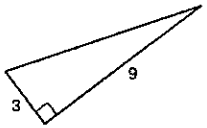
b.



25

yes a triple

c.



$3\sqrt{10}$

Not a triple

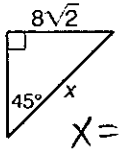
50. Tell whether the measures can be the side lengths of a triangle. If so, classify the triangle as acute, obtuse, or right.

a. 15, 18, 20 — yes Δ, acute Δ

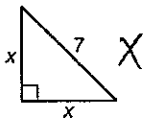
b. 7, 8, 11 — yes Δ, obtuse Δ

c. 6, 7, $3\sqrt{13}$ — yes Δ, obtuse Δ

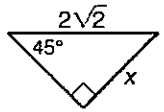
51. Find the value of x. Give your answer in simplest radical form.

a. 

X=16

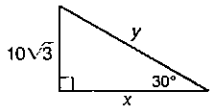
b. 

$X=\frac{7\sqrt{2}}{2}$

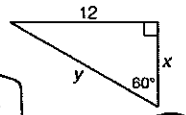
c. 

X=2

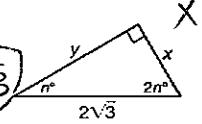
52. Find the values of x and y. Give your answers in simplest radical form.

a. 

X=30; y=20√3

b. 

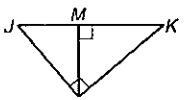
X=4√3

c. 

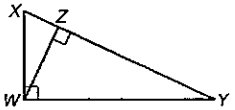
y=8√3

X=√3
y=3

53. Write a similarity statement comparing the three triangles in each diagram.

a. 

ΔJML ~ ΔJLK ~ ΔLMK

b. 

ΔXYW ~ ΔXWZ ~ ΔWYZ

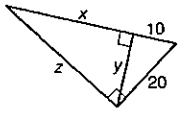
54. Find the geometric mean of each pair of numbers. If necessary, give the answer in simplest radical form.

a. 3 and 75 — 15

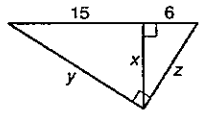
b. 0.5 and 9 — $\frac{3\sqrt{2}}{2}$

c. 4 and 12.25 — 7

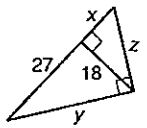
55. Find the values of x, y, and z.

a. 

X=30
y=10√3
z=20√3

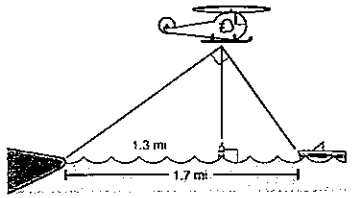
b. 

X=3√10; y=3√35; z=3√14

c. 

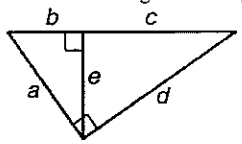
X=12; y=9√3; z=6√3

56. The Coast Guard has sent a rescue helicopter to retrieve passengers off a disabled ship. The ship has called in its position as 1.7 miles from shore. When the helicopter passes over a buoy that is known to be 1.3 miles from shore, the angle formed by the shore, the helicopter, and the disabled ship is 90°. Determine what the altimeter would read to the nearest foot when the helicopter is directly above the buoy.



3807 ft

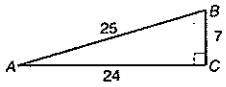
57. Use the diagram to complete each proportion.



a. $\frac{e}{b}=\frac{?}{e}$ — C

b. $\frac{d}{?}=\frac{a}{e}$ — C

58. Use the figure to write each trigonometric ratio as a simplified fraction and as a decimal rounded to the nearest hundredth.



a. sin A — $\frac{7}{25}=0.28$

b. tan B — $\frac{24}{7}\approx 3.43$

c. cos A — $\frac{24}{25}=0.96$

59. Use special right triangles to find each trigonometric ratio. Given answers in simplest radical form if necessary.

a. sin 30° — $\frac{1}{2}$

b. tan 45° — 1

c. cos 45° — $\frac{\sqrt{2}}{2}$

d. cos 30° — $\frac{\sqrt{3}}{2}$

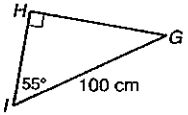
e. tan 30° — $\frac{\sqrt{3}}{3}$

f. tan 60° — $\sqrt{3}$

60. Use a calculator to find each trigonometric ratio. Round to the nearest hundredth.

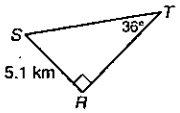
a. $\sin 64°$ ≈0.90 b. $\cos 58°$ ≈0.53 c. $\tan 15°$ ≈0.27

61. Find HI.



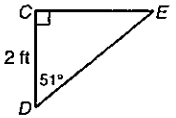
≈57.36

62. Find ST.



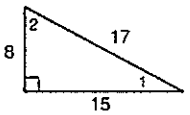
≈8.68

63. Find DE.



≈3.18

64. Use the given trigonometric ratio to determine which angle of the triangle is $\angle A$.



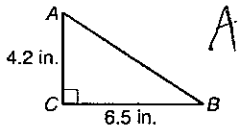
a. $\sin A = \frac{8}{17}$ ∠1 b. $\tan A = \frac{15}{8}$ ∠2 c. $\cos A = \frac{8}{17}$ ∠2

65. Use a calculator to find each angle measure to the nearest degree.

a. $\sin^{-1}(0.82)$ 55° b. $\tan^{-1}(5.03)$ 79° c. $\cos^{-1}(0.23)$ 77°

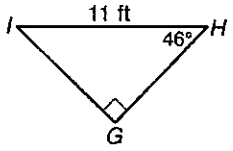
66. Solve the triangle. Round lengths to the nearest hundredth and angles to the nearest degree.

a.



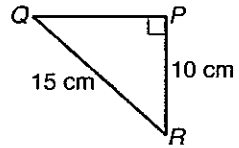
AB≈7.74 mLA≈57° mLB≈33°

b.



mLI = 44°
IG≈7.91
HG≈7.64

c.

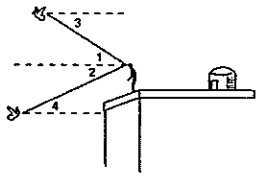


QP≈11.18 mLQ≈42° mLR≈48°

67. The vertices of ΔBCD are B(-2, -4) C(3, 3) and D(-2, 3). Find all three side lengths to the nearest hundredth and all three angle measures to the nearest degree.

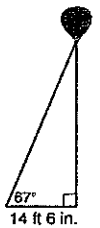
BC≈8.60 mLD=90°
CD=5 mLC≈54°
BD=7 mLB≈36°

68. Marco breeds and trains homing pigeons on the roof of his building. Classify each angle as an angle of elevation of an angle of depression.



a. ∠1 elevation
b. ∠2 depression
c. ∠3 depression
d. ∠4 elevation

69. To attract customers to his car dealership, Frank tethers a large red balloon to the ground. In each scenario below, give answers in feet and inches to the nearest inch.



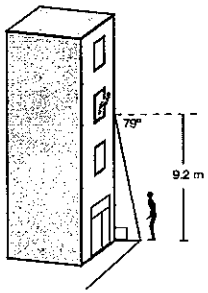
a. The sun is directly overhead. The shadow of the balloon falls 14 feet 6 inches from the tether. Frank sights an angle of elevation of 67°. Find the height of the balloon. (ignore Frank's height here)

34 ft 2 in

b. Find the length of the cord that tethers the balloon.

37 ft 1 in

70. Lindsey shouts down to Pete from her third-story window. Consider the following scenarios:



a. Lindsey is 9.2 meters up, and the angle of depression from Lindsey to Pete is 79°. Find the distance from Peter to the base of the building to the nearest tenth of a meter.

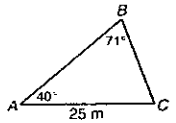
1.8 m

b. To see Lindsey better, Pete walks out into the street so he is 4.3 meters from the base of the building. Find the angle of depression from Lindsey to Pete to the nearest degree.

65°

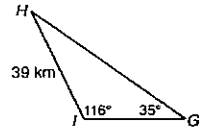
71. Use the Law of Sines to find each measure. Round lengths to the nearest tenth and angle measures to the nearest degree.

a. Find BC.



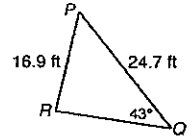
17.0

b. Find GH.



61.1

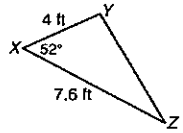
c. Find $m\angle R$.



85°

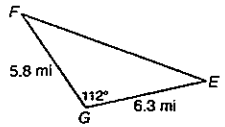
72. Use the Law of Cosines to find each measure. Round lengths to the nearest tenth and angle measures to the nearest degree.

a. Find YZ.



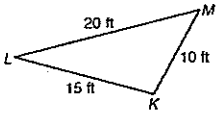
6.0

b. Find EF.



10.0

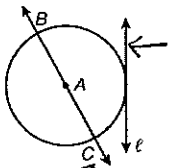
c. Find $m\angle M$.



47°

73. Identify each line or segment that intersects the circle.

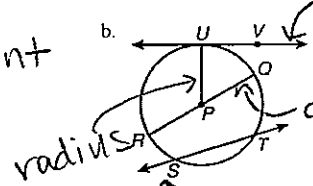
a.



tangent

secant

b.



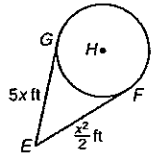
tangent

diameter

radius

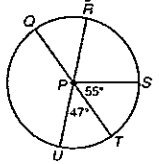
secant

74. $\overline{EF}$ and $\overline{EG}$ are tangent to $\odot H$. Find EF.



50

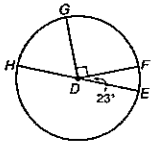
75. Find $m\widehat{QS}$ and $m\widehat{RQT}$.



$m\widehat{QS} = 125°$

$m\widehat{RQT} = 227°$

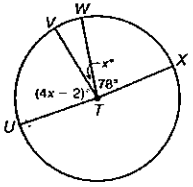
76. Find $m\widehat{HG}$ and $m\widehat{FEH}$.



$m\widehat{HG} = 67°$

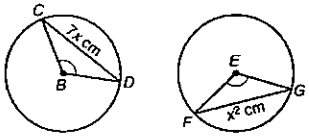
$m\widehat{FEH} = 203°$

77. Find $m\angle UTW$.



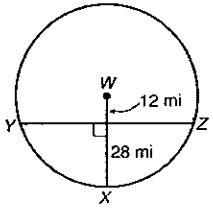
102°

78. The circles are congruent. Find FG.



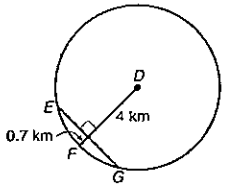
49 cm

79. Find ZY. Round to the nearest tenth.



76.3 mi

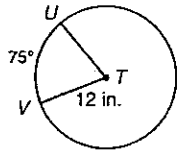
80. Find EG. Round to the nearest tenth.



4.9 km

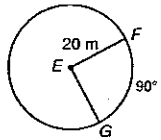
81. Find the area of each shaded sector. Give your answers in terms of π and rounded to the nearest hundredth.

a.



$30\pi \approx 94.25 \text{ in}^2$

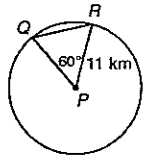
b.



$100\pi \approx 314.2 \text{ m}^2$

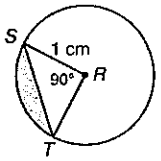
82. Find the area of each shaded segment to the nearest hundredth.

a.



10.97 km²

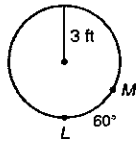
b.



0.29 cm²

83. Find each arc length. Give your answers in terms of π and rounded to the nearest hundredth.

a.



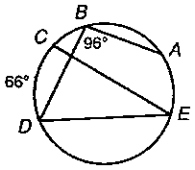
$\pi \approx 3.14$ ft

b. An arc with measure 45° in a circle with radius 2 mi

$\frac{\pi}{2} \approx 1.57$ mi

84. Find each measure.

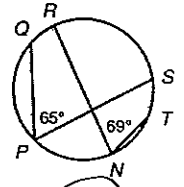
a. Find $m\angle CED$ and $m\widehat{DEA}$



$m\angle CED = 33°$

$m\widehat{DEA} = 192°$

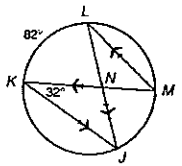
b. Find $m\widehat{QRS}$ and $m\widehat{TSR}$



$m\widehat{QRS} = 130°$

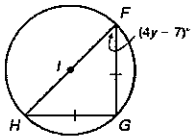
$m\widehat{TSR} = 138°$

85. A circular radar screen in an air traffic control tower shows these flight paths. Find $m\angle LNK$.



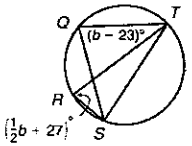
73°

86. Find the value of y.



13

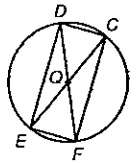
87. Find the value of b.



100

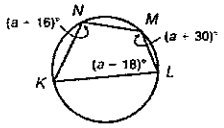
88. Find the measure of each angle in the quadrilateral.

a.



all $\angle$s are 90°

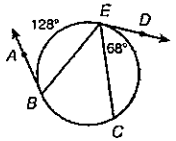
b.



$m\angle K = 59°$ $m\angle N = 107°$

$m\angle M = 121°$ $m\angle L = 73°$

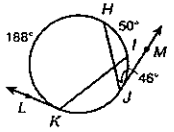
89. Find $m\angle ABE$ and $m\overset{\frown}{BC}$.



$m\angle ABE = 64°$

$m\overset{\frown}{BC} = 96°$

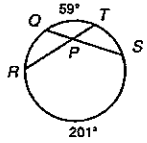
90. Find $m\angle LKI$ and $m\overset{\frown}{IJ}$.



$m\angle LKI = 119°$

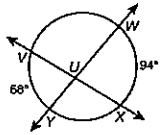
$m\overset{\frown}{IJ} = 42°$

91. Find $m\angle RPS$.



130°

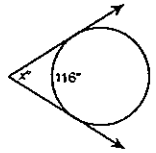
92. Find $m\angle YUX$.



99°

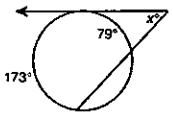
93. Find the value of x.

a.



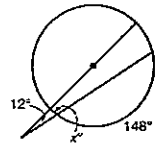
64

b.



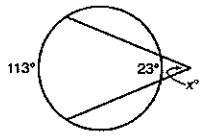
47

c.



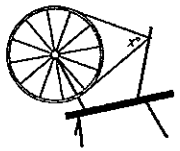
8

d.



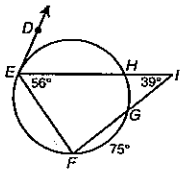
45

94. The figure shows a spinning wheel. The large wheel is turned by hand or with a foot trundle. A belt attaches to a small bobbin that turns very quickly. The bobbin twists raw materials into thread, twine, or yarn. Each pair of spokes intercepts a 30° arc. Find the value of x.



60

95. Find $m\angle DEI$ and $m\overset{\frown}{EF}$.



$m\overset{\frown}{EF} = 115°$

$m\angle DEI = 66.5°$

96. Write the equation of the circle with center at the origin and radius 10.

$x^2 + y^2 = 100$

97. Write the equation of the circle with center (-1, 8) and radius 5.

$(x+1)^2 + (y-8)^2 = 25$

98. Write the equation of the circle with center (-5, -5) and radius $2\sqrt{5}$

$(x+5)^2 + (y+5)^2 = 20$

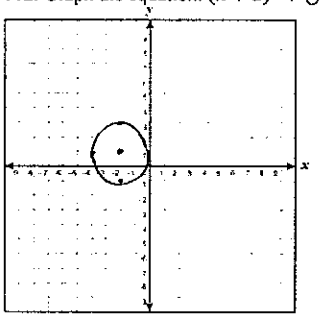
100. Write the equation of the circle centered at the origin that passes through (9, -2).

$x^2 + y^2 = 85$

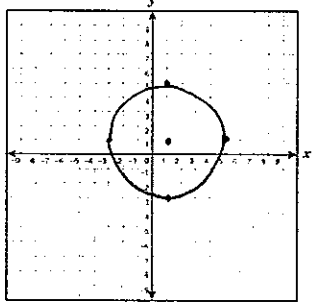
101. Write the equation of the circle with center (11, 4) that passes through (-2, 5).

$(x-11)^2 + (y-4)^2 = 170$

102. Graph the equation. $(x + 2)^2 + (y - 1)^2 = 4$

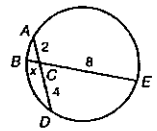


103. Graph the equation $(x - 1)^2 + (y - 1)^2 = 16$



104. Find the value of the variable and the length of each chord.

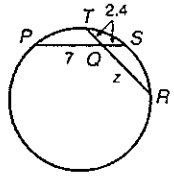
a.



$X = 1$

$AD = 6$, $BE = 9$

b.

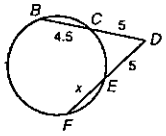


$z = 7$

$TR = PS = 9.4$

105. Find the value of the variable and the length of each secant segment.

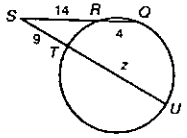
a.



$X = 4.5$

$BD = DF = 9.5$

b.

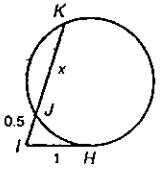


$z = 19$

$QS = 18$, $SU = 28$

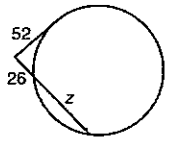
106. Find the value of the variable. Exact answers.

a.



$X = 1.5$

b.

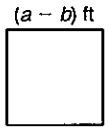


78

108. Find the perimeter of the rectangle. The area of the rectangle is $2xy$ mi^2

$4x+2y$

109. Find the area of the square.

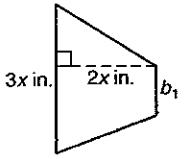


$a^2-2ab+b^2$

110. Find the height of the parallelogram whose area is 96 cm^2 and whose base is 8x cm.

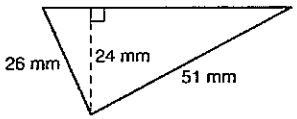
$\frac{12}{x}$ cm

111. Find b_1 of the trapezoid in which the area is $4x^2$ in^2.



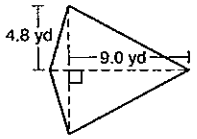
X

112. Find the area of the triangle.



660 mm^2

113. Find the perimeter of the kite whose area is 49.92 yd^2.



30.4 yd

114. Find the area of a circle with radius 25m. Exact answer.

625π m^2

115. Find the area of a circle with diameter 4a in. Exact answer.

$4a^2\pi$ in^2

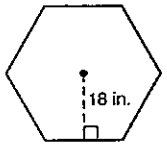
116. Find the circumference of a circle with diameter 1200 mi. Exact answer.

1200π mi

117. Find the radius of the circle whose circumference is $2\pi^2$ cm.

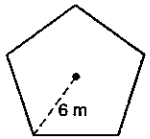
π cm

118. Find the area of the regular hexagon. Exact answer.



$648\sqrt{3}$ in^2

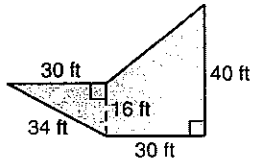
119. Find the area of the regular pentagon. Round to hundredth.



85.59 m^2

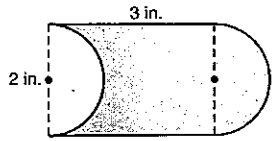
120. Find the area of the shaded region. Round to hundredth, if necessary.

a.



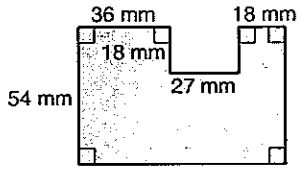
1080 ft^2

b.



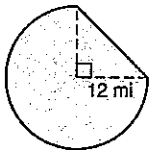
6 in^2

c.



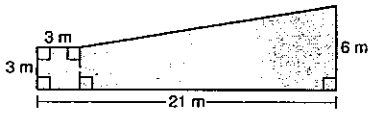
3888 mm^2

d.



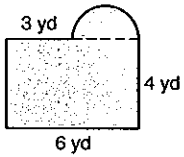
411.29 mi^2

e.



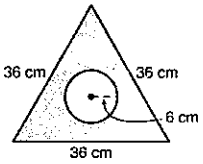
90 m^2

f.



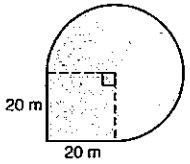
27.53 yd^2

g.



448.09 cm^2

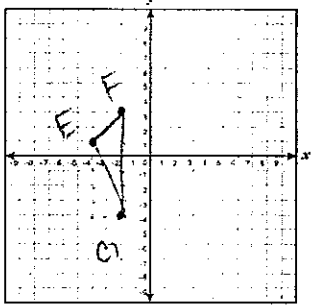
h.



1342.48 m^2

121. Draw and classify each polygon with the given vertices. Find the perimeter and the area of the polygon. Round to hundredth, if necessary.

a. E(-4, 1), F(-2, 3), G(-2, -4)

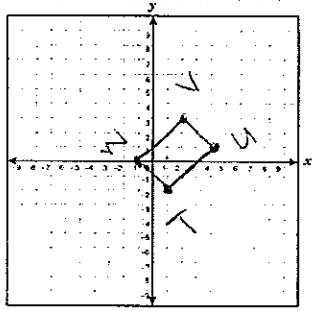


scalene △

per ≈ 15.21

area = 7

b. T(1, -2), U(4, 1), V(2, 3), W(-1, 0)



rectangle

per ≈ 14.14

area = 12

122. Describe the effect of each change on the area of the given figure.

a. A rectangle with length 12 yd and width 11 yd when the length is divided by 6.

area is ÷ by 6

b. A trapezoid with base lengths 4 mm and 7 mm and height 9 mm when the height is multiplied by $\frac{1}{3}$.

area is ÷ by 3

123. Describe the effect of each change on the perimeter and the area of the given figure.

a. A rectangle with base 1.5 m and height 6 m when the base and height are both tripled.

area is x by 9 (3^2)

per is x by 3

b. A trapezoid with base length 4 in and 8 in and height 8 in when the bases and height are all multiplied by $\frac{1}{8}$.

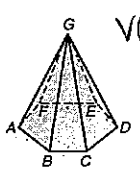
area is x by $\frac{1}{64}$ $\left(\left(\frac{1}{8}\right)^2\right)$

per is x by $\frac{1}{8}$

124. A circle has circumference 14π ft. The area is halved. Describe the effects on the circumference of the circle.

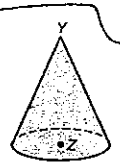
circum. is ÷ by $\sqrt{2}$

125. Name the figure. Then name all vertices, edges, and bases.

a. 

vertices: A, B, C, D, E, F, G

Edges: $\overline{AG}$, $\overline{BG}$, $\overline{CG}$, $\overline{DG}$, $\overline{EG}$, $\overline{FG}$, $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, $\overline{DE}$, $\overline{EF}$, $\overline{FA}$

b. 

base: ABCDEF

vertex: Y edge: none

base: ⊙Z

126. Find the distance between the given points. Then find the midpoint of the segment. Exact answers.

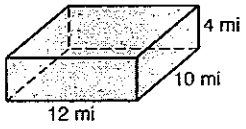
a. (1, 10, 3) and (5, 5, 5)

dist = $3\sqrt{5}$ mdpt = (3, 7.5, 4)

b. (-8, 0, 11) and (2, -6, -17)

dist = $2\sqrt{230}$ mdpt = (-3, -3, -3)

127. Find the lateral area and the surface area of the right prism. Assume the 4x10 side is the base.



LA = 336 mi^2

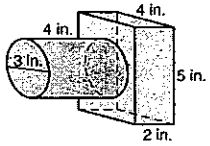
SA = 416 mi^2

128. Find the lateral area and surface area of a cube with edge length 20 in.

LA = 1600 in^2

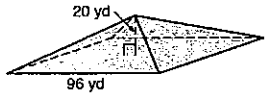
SA = 2400 in^2

129. Find the surface area of the composite figure. Round to hundredth.



113.70 in^2

130. Find the lateral area and surface area of the right square pyramid. Round to hundredth, if necessary.



LA = 9984 yd^2

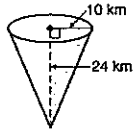
SA = 19200 yd^2

131. Find the lateral area and surface area of a regular hexagonal pyramid with base edge length 12 miles and slant height 15 miles.

LA = 540 mi^2

SA = $540 + 216\sqrt{3}$ mi^2

132. Find the lateral area and surface area of the right cone. Exact answer.



LA = 260π km^2

SA = 360π km^2

133. Find the lateral area and surface area of a right cone with base circumference 14π ft and slant height 3 times the radius.

LA = 147π ft^2

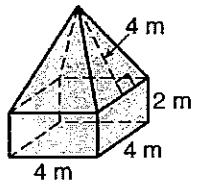
SA = 196π ft^2

134. Find the lateral area and surface area of a right cone with diameter 240 cm and altitude 35 cm.

LA = 15000π cm^2

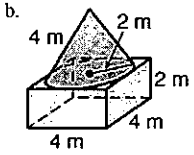
SA = 29400π cm^2

135. Find the surface area of the composite figure. Round to hundredth, if necessary.

a. 

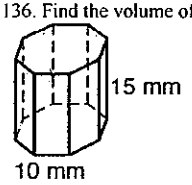
80 m^2

b.



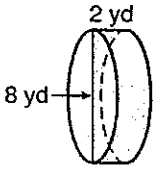
$76.57\ m^2$

136. Find the volume of the right prism. Round to hundredth.



$7242.66\ mm^3$

137. Find the volume of the cylinder. Exact answer.

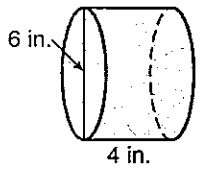


$32\pi\ yd^3$

138. Find the volume of a right cylinder with base circumference 18π ft and height 10 ft.

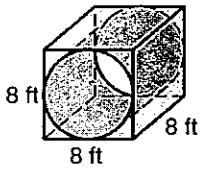
$810\pi\ ft^3$

139 Describe the effect on the volume of the cylinder when the dimensions are halved.



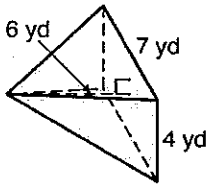
vol. is ÷ by 8

140. Find the volume of the composite figure. Round to hundredth.



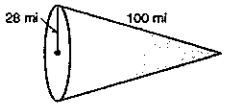
$109.88\ ft^3$

141. Find the volume of the right rectangular pyramid.



$56\ yd^3$

142. Find the volume of the cone. Exact answer.

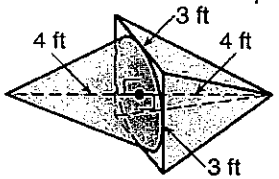


$2508\pi\ mi^3$

143. Find the volume of a cone with base circumference 6π m and a height equal to half the radius. Exact answer.

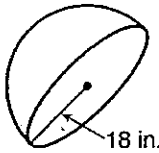
$\frac{9\pi}{2}\ m^3$

144. Find the volume of the composite figure. Round to hundredth.



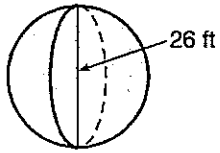
$21.42\ ft^3$

145. Find the volume of the hemisphere. Exact answer.



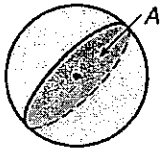
$3888\pi\ in^3$

146. Find the volume of the sphere. Exact answer.



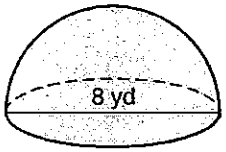
$\frac{8788\pi}{3}\ ft^3$

147. Find the surface area of the sphere.



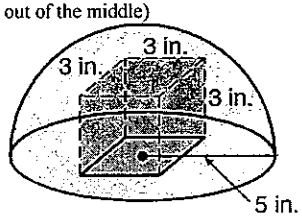
484π in^2

148. Find the surface area of the hemisphere.



48π yd^2

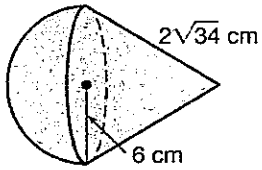
149. Find the surface area and volume of the solid. Round to hundredth. (the shape is a hemisphere with a cube cut out of the middle)



$SA \approx 271.62$ in^2

$V \approx 103.90$ in^3

150. Find the surface area and volume of the solid. Round to hundredth.



$SA \approx 446.02$ cm^2

$Vol \approx 829.38$ cm^3

151. Using the appropriate abbreviations, name ALL sets of real numbers to which the number 28 belongs.

W, Z, Q, R

152. Let A = {1, 2, 5, 7, 8, 11} and let B = {2, 4, 6, 8, 10}. Find $A \cup B$ and $A \cap B$.

$A \cup B$: {1, 2, 4, 5, 6, 7, 8, 10, 11}

$A \cap B$: {2, 8}

153. Write an equation for the line which passes through the points (-3, 1) and (2, -5)

$6x + 5y = -13$

154. Write an equation for the line perpendicular to $3x - 2y = 10$ and with x-intercept 4.

$2x + 3y = 8$

155. Solve the system.

$4x + 3y = -5$
$12x + 4y = 10$

$(2.5, -5)$

156. Factor the expression.

a. $4x^2 + 20x + 25$

$(2x+5)^2$

b. $a^2b + a^2 + 2b + 2$

$(b+1)(a^2+2)$

157. Solve the equation.

a. $x^3 = 81x$

$x = 0$ or $x = 9$ or $x = -9$

b. $x^2 - 8x + 14 = 0$

$x = 4 \pm \sqrt{2}$

158. Find the center and radius of the circle.

$x^2 + 10x + y^2 - 12y = -10$

center $(-5, 6)$

$r = \sqrt{51}$

159. Simplify the following

a. $6\sqrt{5} + 8\sqrt{20} - \sqrt{80}$

$18\sqrt{5}$

b. $\sqrt{\frac{x^2y}{5}}$

$\frac{x\sqrt{5y}}{5}$

160. Solve the absolute value inequality. Write your answer in set notation.

a. $|2x + 1| \geq 2$

$\{x \mid x \leq -\frac{3}{2} \text{ or } x \geq \frac{1}{2}\}$

b. $|3x + 2| \leq 10$

$\{x \mid -4 \leq x \leq \frac{8}{3}\}$