L3 Geometry Final Exam Review name KEY
block _____

Chapter Seven

1. Solve each proportion

a) $\frac{2}{7}=\frac{b+1}{56}$ $7b+7=112$ $7b=105$ $b=15$

b) $\frac{x}{2x+1}=\frac{16}{40}$ $40x=32x+16$ $8x=16$ $x=2$

c) $\frac{(x+1)}{(x+1)}=\frac{10}{14}$ $14x+14=10x+10$ $4x=-4$ $x=-1$ NO SOLUTION — $x=-1$ MAKES $\frac{0}{0}$ WHICH IS UNDEFINED (DIVISION BY ZERO)

2. **Determine whether each statement is *always*, *sometimes*, or *never* true.**

a) A Two squares are similar.

b) S Two hexagons are similar.

c) S Two similar triangles are congruent.

d) N A rhombus and a pentagon are similar.

3. **In the diagram below, $\Delta PRQ \sim \Delta DEF$. Find each of the following.**

a) the scale factor of ΔPRQ to ΔDEF $\frac{20}{24}$ $\frac{5}{6}$

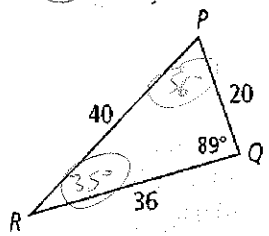
b) $m\angle D$ 56°

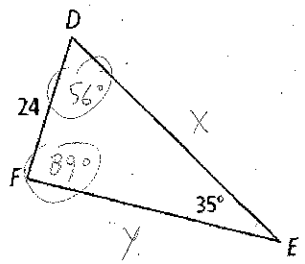
c) $m\angle R$ 35°

d) $m\angle P$ 56°

e) DE 48

f) FE 43.2





$\frac{5}{6}=\frac{40}{x}$ $5x=240$ $x=48$

$\frac{5}{6}=\frac{36}{y}$ $5y=216$ $y=43.2$

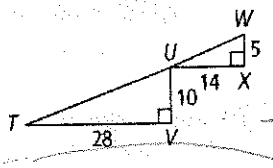
4. An architect is making a scale drawing of a building. She uses the scale 1 in. = 15 ft.

a. If the building is 48 ft tall, how tall should the scale drawing be? $\frac{1}{15}=\frac{x}{48}$ $15x=48$ $x=3.2$"

b. If the building is 90 ft wide, how wide should the scale drawing be? $\frac{1}{15}=\frac{x}{90}$ $15x=90$ $x=6$"

5. Determine whether the triangles are similar. If so, write a similarity statement and name the postulate or theorem you used. If not, explain.

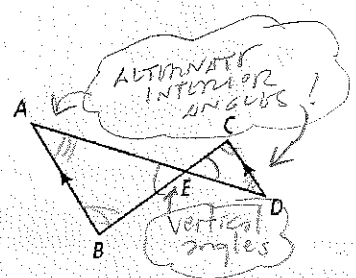
a)



$\frac{5}{10}=\frac{14}{28}$

YES, SIMILAR SAS $\Delta TUV \sim \Delta UWX$

b)

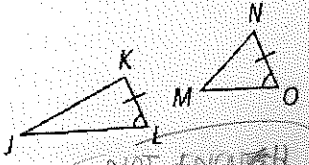


ALTERNATE INTERIOR ANGLES!

Vertical angles

YES, SIMILAR AA $\Delta AEB \sim \Delta DEC$

c



NOT ENOUGH INFO.

NEED ANOTHER ANGLE OR SIDE

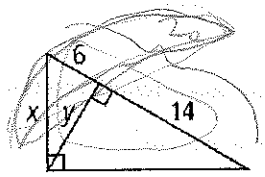
6) Find the geometric mean of each pair of numbers.

a) 9 and 16 $\sqrt{9 \cdot 16} = \sqrt{144} = 12$

b) 14 and 6 $\sqrt{14 \cdot 6} = \sqrt{84} = 2\sqrt{21}$ (or 9.2)

c) 12 and 16 $\sqrt{12 \cdot 16} = \sqrt{192} = 8\sqrt{3}$ (or 13.9)

7) Solve for x and y in the right triangle



$\frac{6}{x} = \frac{x}{20}$

$x^2 = 120$

$x = 2\sqrt{30}$ (or 11.0)

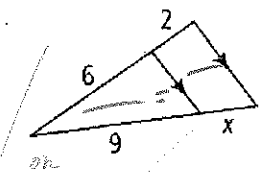
$\frac{6}{y} = \frac{y}{14}$

$y^2 = 84$

$y = 2\sqrt{21}$ (or 9.2)

8. Solve for x

a)



$\frac{6}{9} = \frac{2}{x}$

$6x = 18$

$x = 3$

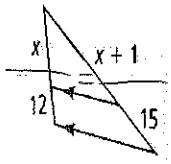
or

$\frac{6}{2} = \frac{9}{x}$

$6x = 18$

$x = 3$

b)



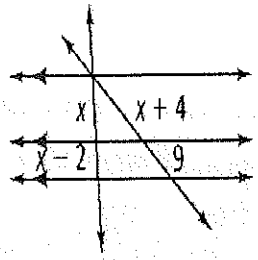
$\frac{x}{12} = \frac{x+1}{15}$

$15x = 12x + 12$

$3x = 12$

$x = 4$

c)



$\frac{x}{x-2} = \frac{x+4}{9}$

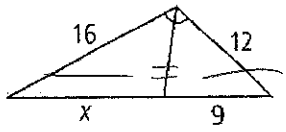
$9x = x^2 + 2x - 8$

$0 = x^2 - 7x - 8$

$0 = (x-8)(x+1)$

$x = 8$ or $x = -1$

d)



$\frac{16}{x} = \frac{12}{9}$

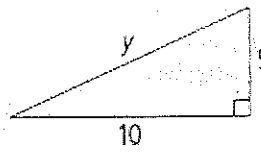
$12x = 144$

$x = 12$

Chapter Eight

1. Find the value of the variable in simple radical form.

a)



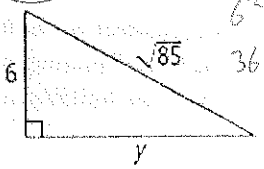
$5^2 + 10^2 = y^2$

$25 + 100 = y^2$

$\sqrt{125} = y^2$

$5\sqrt{5} = y$

b)



$6^2 + y^2 = (\sqrt{85})^2$

$36 + y^2 = 85$

$y^2 = 49$

$y = 7$

2. Given the three sides of a triangle, classify the triangle as acute, right, or obtuse.

a) 3, 8, 10

$9 + 64 \quad 100$

$73 < 100$

OBTUSE

b) 12, 15, 19

$144 + 225 \quad 361$

$369 > 361$

ACUTE

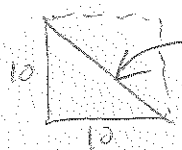
c) 10, 24, 26

$100 + 576 \quad 676$

$676 = 676$

RIGHT △

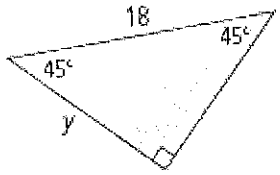
3. A square has side length 10 yd. What is the length of a diagonal of the square? Express in simplest radical form.



$10\sqrt{2}$ YARDS (45-45-90 TRIANGLE)

4. Find the value of each variable as an integer or in simple radical form

a)



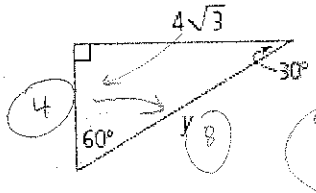
$Y = \frac{18}{\sqrt{2}}$

$Y = \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$Y = \frac{18\sqrt{2}}{2}$

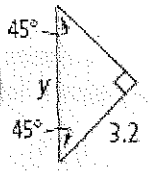
$Y = 9\sqrt{2}$

b)



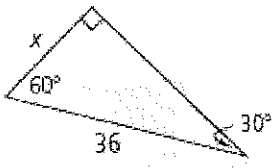
$Y = 8$

c)



$3.2\sqrt{2}$ or 4.5

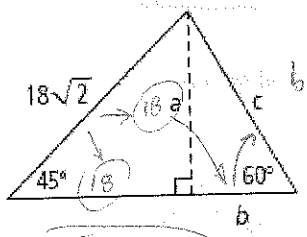
d)



$X = \frac{36}{2}$

$X = 18$

e)



$b = \frac{18}{\sqrt{3}}$

$b = \frac{18}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$b = \frac{18\sqrt{3}}{3}$

$b = 6\sqrt{3}$

$a = 18$

$b = 6\sqrt{3}$

$c = 12\sqrt{3}$

$c = 2(6\sqrt{3})$

$c = 12\sqrt{3}$

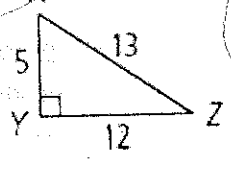
5. write as ratios and with four decimal places

$\sin X = \frac{12}{13}$ $(\sin^{-1})$ $X = 67.3801$

$\cos X = \frac{5}{13}$

$\tan X = \frac{12}{5}$

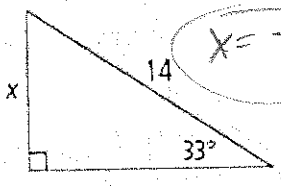
(same X value for all three)



FIND MISSING ANGLE "X" BY USING INVERSE TRIG RATIO ON BOTH SIDES

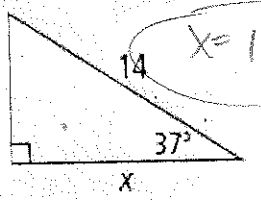
6. Find x, round to the nearest tenth.

a) $(14)\sin 33 = \frac{x}{14}$ $(\cdot 14)$



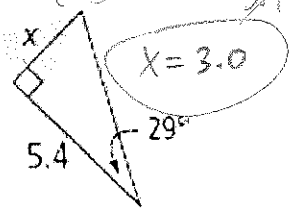
$X = 7.6$

b) $(14)\cos 37 = \frac{x}{14}$ $(\cdot 14)$



$X = 11.2$

c) $(5.4)\tan 29 = \frac{x}{5.4}$ $(\cdot 5.4)$

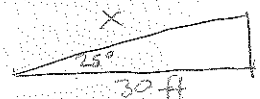


$X = 3.0$

7. A straight ramp rises at an angle of 25 degrees. Its base is 30 feet long. (Round answers to the nearest foot.)

a) How long is the ramp?

b) How high does the ramp go?



$(x)\cos 25 = \frac{30}{x}$ $(\cdot x)$ $(\div \cos 25)$

$\frac{x\cos 25}{\cos 25} = \frac{30}{\cos 25}$

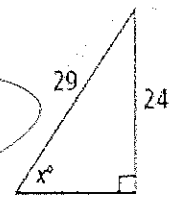
$X = 33$ feet long

$\tan 25 = \frac{y}{30}$ $(\cdot 30)$

$Y = 14$ feet high

8. Find x, round to the nearest tenth of a degree.

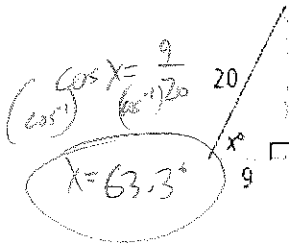
a)



$(\sin^{-1})\ \sin X = \left(\sin^{-1}\right)\frac{24}{29}$

$X = 55.9°$

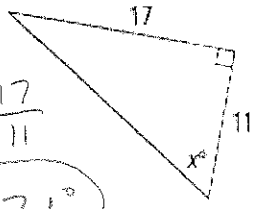
b)



$(\cos^{-1})\ \cos X = \frac{9}{120}$

$X = 63.3°$

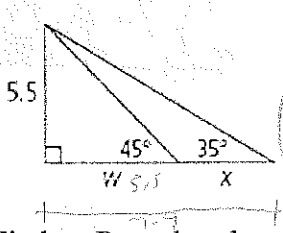
c)



$(\tan^{-1})\ \tan X = \frac{17}{11}$

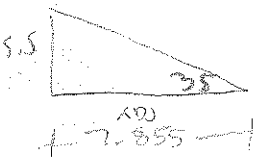
$X = 57.1°$

9. Find w and x



$W = 5.5$

$X = 2.4$



$\tan 35 = \frac{5.5}{ADJ}$

$ADJ = \frac{5.5}{\tan 35}$

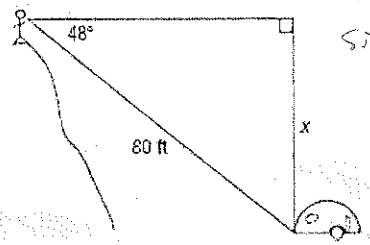
$ADJ = 7.9$

$\frac{\sin 32}{12} = \frac{\sin 66}{Y}$

$Y = \frac{(12)(\sin 66)}{\sin 32}$

10. Find x. Round to the nearest tenth.

a)

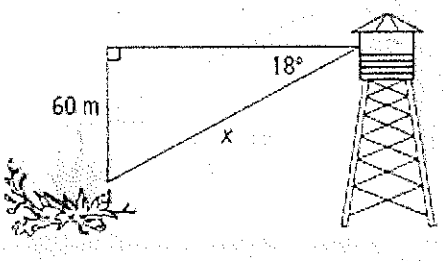


$\sin 48 = \frac{x}{80}$

$X = (80)(\sin 48)$

$X = 59.5$

b)

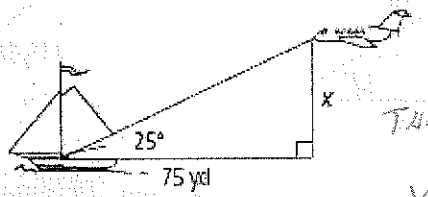


$\sin 18 = \frac{60}{x}$

$X = \frac{60}{\sin 18}$

$X = 194.2$

c)

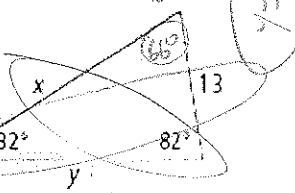


$\tan 25 = \frac{x}{75}$

$X = (75)(\tan 25)$

$X = 35.0$

11. Use the Law of Sines to find x and y. round to nearest tenth.



$\frac{x}{13} = \frac{\sin 32}{\sin 82}$

$\frac{(x)(\sin 32)}{\sin 32} = \frac{(13)(\sin 82)}{\sin 32}$

$X = \frac{(13)(\sin 82)}{\sin 32}$

$X = 24.3$

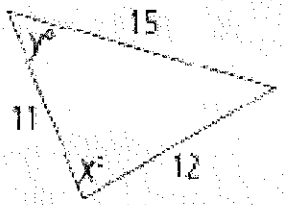
$180 - 82 - 32 = 66$

$\frac{x}{\sin 66} = \frac{13}{\sin 32}$

$x = 22.4$

12. Use the Law of Cosines to solve. Round to nearest tenth.

12. Use the Law of cosines



$15^2 = 11^2 + 12^2 - 2(11)(12)\cos X$

$225 = 121 + 141 - 264\cos X$

$225 = 265 - 264\cos X$

$-265 \quad -265$

$\frac{-40}{-264} = \frac{-264\cos X}{-264}$

$(\cos^{-1})\ .15 = \cos X$

$81.3 = X$

$12^2 = 11^2 + 15^2 - 2(11)(15)\cos Y$

$144 = 121 + 225 - 330\cos Y$

$144 = 346 - 330\cos Y$

$-346 \quad -346$

$\frac{-202}{-330} = \frac{-330\cos Y}{-330}$

$(\cos^{-1})\ .612 = \cos Y$

$52.3° = Y$

L3 Geometry Final Exam Review

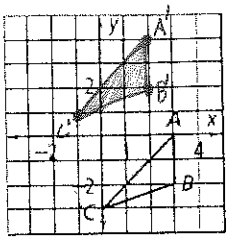
name _____ Part II

block _____

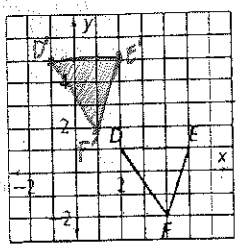
Chapter 9

1. Graph the image under the given transformation

a) $T_{<-1,\,4>}$ (ΔABC)

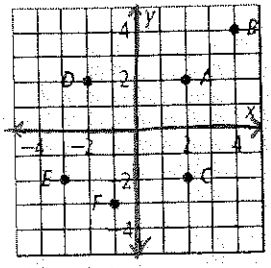


b) $T_{<-3,\,4>}$ (ΔDEF)

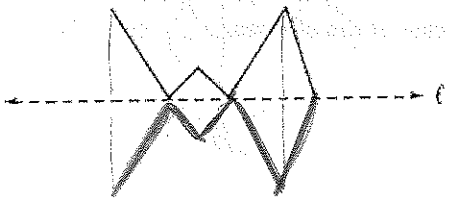


2. Find the coordinates of each image

a) $R_{x\text{-axis}}(A)$ = C (2, -2)
b) $R_{y\text{-axis}}(B)$ = (-4, 4)
c) $R_{y=1}(C)$ = (2, 4)
d) $R_{x=-1}(D)$ = (0, 2)
e) $R_{y=-1}(E)$ = (-3, 0)
f) $R_{x=2}(F)$ = (5, -3)

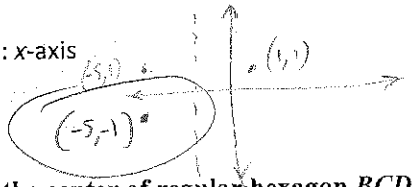


3. Draw the image of the reflection across line l



4. **Find the image of $Z(1, 1)$ after two reflections, first across line ℓ_1, and then across line ℓ_2.**

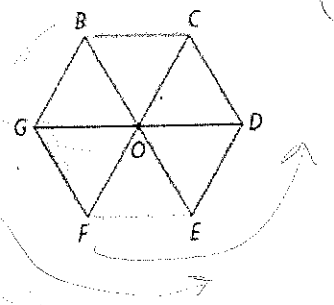
$\ell_1 : x = -2$, ℓ_2 : x-axis



5. **Point O is the center of regular hexagon $BCDEFG$. Find the image of the given point or segment for the given rotation.**

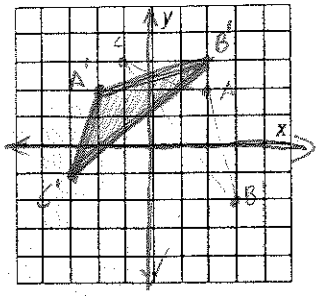
ROTATION IN POSITIVE DEGREES = COUNTERCLOCKWISE

a) $r_{(120°,\,O)}(F)$ D
b) $r_{(180°,\,O)}(B)$ E
c) $r_{(300°,\,O)}(\overline{BG})$ $\overline{CB}$
d) $r_{(360°,\,O)}(\overline{CD})$ $\overline{CD}$
e) $r_{(60°,\,O)}(E)$ B
f) $r_{(240°,\,O)}(\overline{FE})$ $\overline{BG}$



6. ΔABC has vertices $A(2, 2)$, $B(3, -2)$, and $C(-1, 3)$;

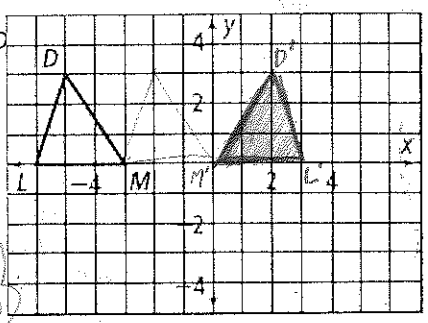
Graph $r_{(90°, O)}(\Delta ABC)$.



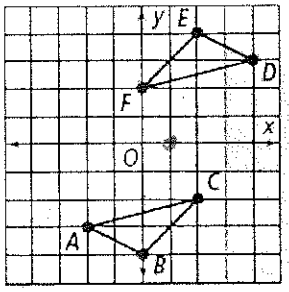
7. Graph ΔDML and its glide reflection image.

$(R_{y\text{-axis}} \circ T_{<3,0>})(\Delta DML)$

GLIDE THEN REFLECT IN A GLIDE REFLECTION



8. Find a congruence transformation that maps ΔABC to ΔDEF.



$R_{180,(1,0)}\ \Delta ABC$

OR

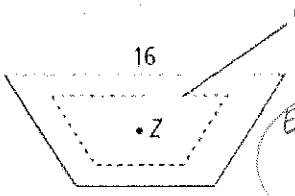
$(R_{180,(2,2)} \circ T_{<-2,4>})\ \Delta ABC$

OR

$(R_{180,0} \circ T_{<2,0>})\ \Delta ABC$

9. The solid-line figure is a dilation of the dashed-line figure. The labeled point is the center of dilation. Tell whether the dilation is an enlargement or a reduction. Then find the scale factor of the dilation.

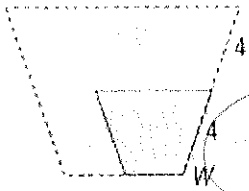
a)



ENLARGEMENT

S.F. $= \frac{14}{4} \frac{4}{3}$

b)



REDUCTION

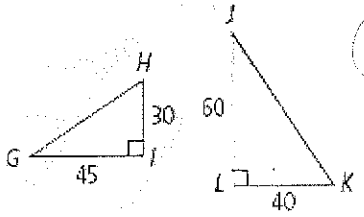
S.F. $= \frac{1}{2}$

10. A dilation has center (0, 0). Find the image of each point for the given scale factor.

a) $X(3, 4)$; $D_7(X)$ $\quad 3 \cdot 7 = 21$, $4 \cdot 7 = 28$ $\quad X'(21, 28)$

b) $S(5, -6)$; $D_{\frac{5}{3}}(S)$ $\quad 5 \cdot \frac{5}{3} = \frac{25}{3}$, $-6 \cdot \frac{5}{3} = -\frac{30}{3} = -10$ $\quad S'\left(\frac{25}{3}, -10\right)$

11. For each pair of figures, determine if there is a similarity transformation that maps one figure onto the other. If so, identify the similarity transformation and write a similarity statement. If not, explain.



$\frac{20}{45} \frac{2}{3}$ (PROPORTIONAL) $\frac{40}{60} \frac{2}{3}$

$D_{\frac{2}{3}} \circ R_{90°} \circ T$

TO MAP ΔJKL ONTO ΔGHI

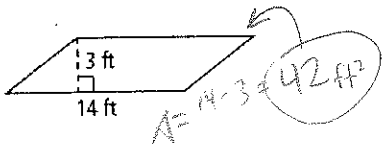
$\frac{40}{60} = \frac{4}{3}$ SCALE FACTOR (JKL TO GHI)

MATCH UP SHORT SIDE W/ SHORT SIDE MED. SIDE W/ MED. SIDE

Chapter 10

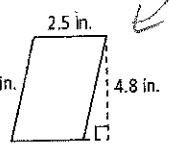
1. Find the area of each figure

a)



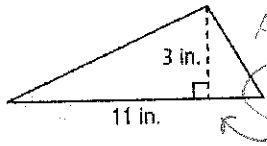
$A = 14 \cdot 3 = 42\ ft^2$

c)



$A = 2.5(4.8) = 12\ in^2$

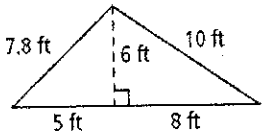
e)



$A = \frac{1}{2}(11)(3)$

$A = 16.5\ in^2$

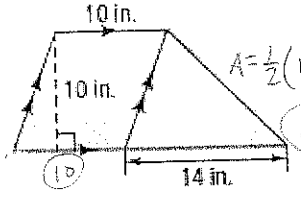
b)



$A = \frac{1}{2}(13)(6)$

$A = 39\ ft^2$

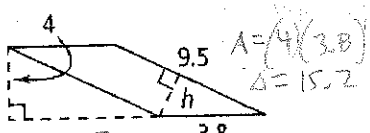
d)



$A = \frac{1}{2}(10)(24+10)$

$A = 170\ in^2$

f) **FIND h**



$A = \frac{1}{2}(4)(3.8)$

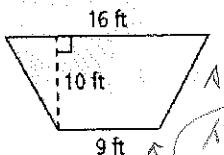
$A = 15.2$

$\frac{9.5h}{9.5} = \frac{15.2}{9.5}$

$h = 1.6$

2. Find area of each figure. Simple radical form where necessary.

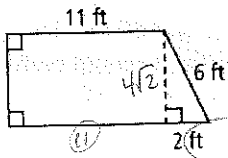
a)



$A = \frac{1}{2}(10)(16+9)$

$A = 125\ ft^2$

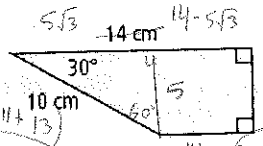
c)



$A = \frac{1}{2}(4\sqrt{2})(11+13)$

$A = 48\sqrt{2}\ ft^2$

e)



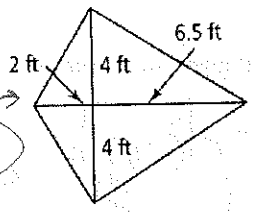
$A = \frac{1}{2}(5)\left((14-5\sqrt{3}) + (5\sqrt{3}+14-5\sqrt{3})\right)$

$SA = \frac{1}{2}(5)(28-5\sqrt{3})$

$A = \frac{140-25\sqrt{3}}{2}$

(OR 48.35)

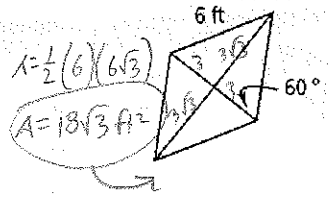
b) (kite)



$A = \frac{1}{2}(8.5)(8)$

$A = 34\ ft^2$

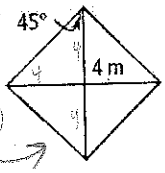
d) (rhombus)



$A = \frac{1}{2}(6)(6\sqrt{3})$

$A = 18\sqrt{3}\ ft^2$

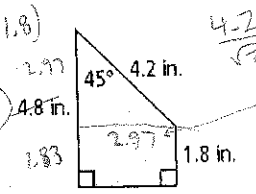
f) (rhombus)



$A = \frac{1}{2}(8)(8)$

$A = 32\ m^2$

3. Find area to nearest tenth.

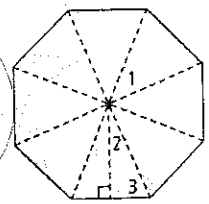


$\frac{4.2}{\sqrt{2}} = 2.97$

$A = \frac{1}{2}(2.97)(4.8+1.8)$

$A = 9.8\ in^2$

4. Regular polygon- find measures of marked angles



$m\angle 1 = 45°$

$m\angle 2 = 22.5°$

$m\angle 3 = 67.5°$

OCTAGON

$\frac{360}{8} = 45$

$\frac{45}{2} = 22.5$

$180 - 90 - 22.5 = 67.5$

5. **Find the area of the regular polygon with the given apothem *a* and side length *s*.**

pentagon, $a = 4.9$ in., $s = 7.1$ in

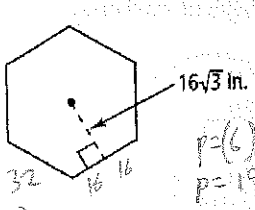
$A = \frac{1}{2}ap$ $p = (5)(7.1) = 35.5$

$A = \frac{1}{2}(4.9)(35.5)$

$A = 86.975\ in^2$

6. Find area of the regular hexagon

a) in simple radical form



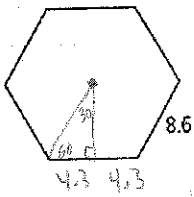
$p = (6)(32)$

$p = 192$

$A = \frac{1}{2}(16\sqrt{3})(192)$

$A = 1536\sqrt{3}\ in^2$

b) to nearest tenth



$p = (8.6)(6)$

$p = 51.6$

$A = \frac{1}{2}(7.45)(51.6)$

$A = 192.2\ ft^2$

7. A stop sign is a regular octagon. Each side of the sign is 12.6 in. long. The area of the stop sign is 770 in.^{2}. What is the length of the apothem to the nearest whole number?

$P = (12.6)(8)$ $A = \frac{1}{2}ap$

$P = 100.8$ $770 = \frac{1}{2}a(100.8)$

$\frac{770}{50.4} = \frac{50.4a}{50.4}$ $a = 13.8$

apothem = 14 inches

8. The figures in each pair are similar.
Compare the first figure to the second.
Give the ratio of the perimeters and the ratio of the areas.

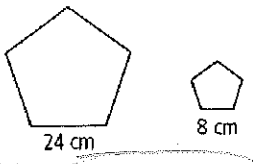
PERIMETER RATIO = $\frac{4}{3}$

AREA RATIO = $\frac{16}{9}$

9. The figures in each pair are similar.
The area of one figure is given.
Find area of the other figure to nearest whole number.

area of larger pentagon = 135 cm^2

PERIM. RATIO $\frac{24}{8} \frac{3}{1}$ AREA RATIO $\frac{9}{1}$



$\frac{9}{1} = \frac{135}{x}$ $9x = 135$ $x = 15$ cm^2

10. Two similar parallelograms have areas 125 m^2 and 80 m^2. The height of the larger parallelogram is 10 m. What are the lengths of the bases of both parallelograms?

$\frac{125}{80}$ AREA RATIO $\frac{25}{16}$ PERIM. RATIO $\frac{5}{4}$ $\frac{5}{4} = \frac{10}{x}$ $5x = 40$ $x = 8$ ← HEIGHT OF SMALLER ▱

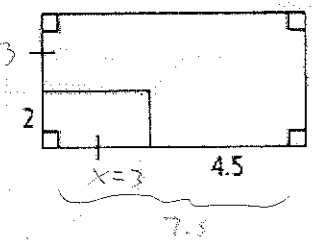
12.5 / 10 $A = 125$ 16 / 10 $A = 80$

BASE LENGTHS: 12.5 m AND 10 m

11. The pair of figures is similar. Compare the larger figure to the smaller figure.
Find the ratio of their perimeters and the ratio of their areas.

$\frac{4.5+x}{2+x} = \frac{x}{2}$ $x^2 + 2x = 2x + 9$ $-2x \quad -2x$ $x^2 = 9$ $x = 3$

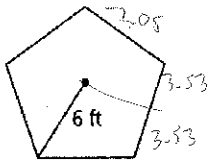
PERIM. RATIO $\frac{5}{2}$ AREA RATIO $\frac{25}{4}$



12. Find area of regular polygon (use trigonometry!) Round to nearest tenth.

a) $\frac{360}{5} = 72$ $P = (5)(7.05) = 35.3$

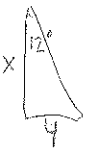
$\sin 36 = \frac{x}{6}$ $x = 3.53$ $\cos 36 = \frac{y}{6}$ $y = 4.85$



$A = \frac{1}{2}(4.85)(35.3)$ $A = 85.6$ ft^2

b) 15-gon with perimeter 120 ft

$\frac{360}{15} = 24$



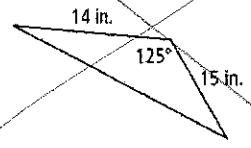
$\frac{120}{15} = 8$ (EACH SIDE)

$\tan 12 = \frac{4}{x}$ $x = \frac{4}{\tan 12}$ $x = 18.8$

$A = \frac{1}{2}(18.8)(120)$ $A = 1129.1$ ft^2

13. Find area of triangle, round to nearest tenth.

DIDN'T DO THIS



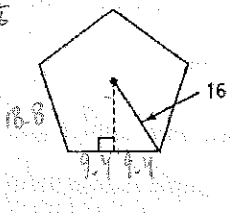
14. Find the perimeter and area of each regular polygon to the nearest tenth.

$\frac{360}{5} = 72$

$P = (5)(18.8)$ $\cos 36 = \frac{y}{16}$

$P = 94$ $y = 12.9$

$A = \frac{1}{2}(12.9)(94)$ $A = 608.4$ in^2

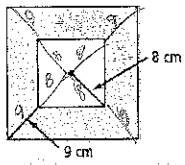


$\sin 36 = \frac{x}{16}$ $x = 9.4$

15. Find the area of the shaded region

(SMALL SQ.) $A = \frac{1}{2}(16)(16) = 128$

(BIG SQ.) $A = \frac{1}{2}(34)(34) = 578$



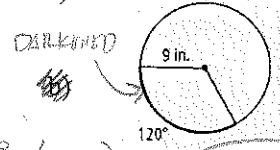
$A = 578 - 128$

$A = 450$ cm^2

$A = \frac{1}{2}(4.5\sqrt{2})(25\sqrt{2})$ $A = 112.5$ $\times 4$ 450

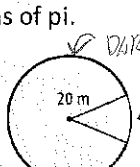
16. Find length of darkened arc in terms of pi.

a)



$\frac{120}{360}(18\pi) = 6\pi$ inches

b)



$\frac{360}{-45}$

$\frac{315}{360}(40\pi) = 35\pi$ m

17. Find each indicated measure for $\odot Y$.

a) $m\angle EYD$ 40°

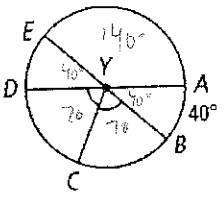
b) $m\angle DYC$ 70°

c) $m\widehat{EAB}$ 180°

d) $m\widehat{AEC}$ 250°

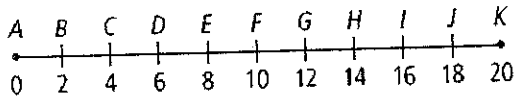
e) $m\widehat{DB}$ 140°

f) $m\widehat{BDA}$ 320°



$40 + 2x = 180$
$2x = 140$
$x = 70$

18. Find the probability that a point chosen at random from $\overline{AK}$ is on the given segment.



FAVORABLE / TOTAL = $\frac{X}{20}$

a) $\overline{CF}$ $\frac{6}{20}$ $\frac{3}{10}$

b) $\overline{FG}$ $\frac{2}{20}$ $\frac{1}{10}$

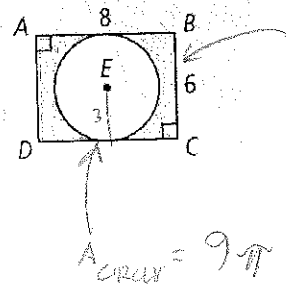
c) $\overline{BIz}$ $\frac{14}{20}$ $\frac{7}{10}$

d) $\overline{AK}$ $\frac{20}{20}$ $\frac{1}{1}$

e) $\overline{GK}$ $\frac{8}{20}$ $\frac{2}{5}$

f) $\overline{AC}$ $\frac{4}{20}$ $\frac{1}{5}$

19. Find the probability that a randomly chosen point lies in the shaded region.



$A_{RECTANGLE} = 8 \cdot 6 = 48$

$A_{CIRCLE} = 9\pi$

$A_{SHADED} = 48 - 9\pi$
(or 19.73)

PROBABILITY = (FAVORABLE) / (TOTAL) $\frac{48 - 9\pi}{48}$

or $\frac{19.73}{48} = .411$

41.1%

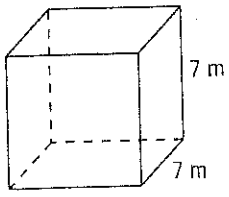
L3 Geometry
Final Exam Review III Ch. 11-12

name _____

Chapter Eleven

1. Find the lateral area and surface area of each figure.

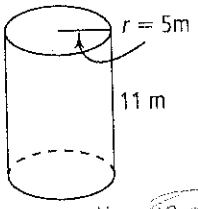
a)



LA = 28·7 = 196

SA = 196 + 2(49) = 294

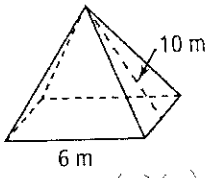
b)



LA = 10π · 11 = 110π

SA = 110π + 2(25π) = 160π

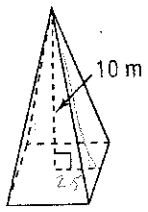
c)



LA = ½(24)(10) = 120

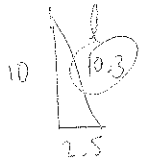
SA = 120 + 36 = 156

d)

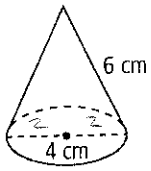


LA = ½(20)(10.3) = 103

SA = 103 + 25 = 128



e)

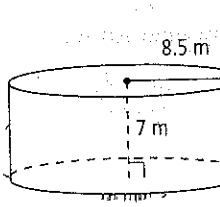


LA = ½(4π)(6) = 12π

SA = 12π + 4π = 16π

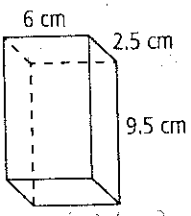
2. Find the volume of each figure.

a)



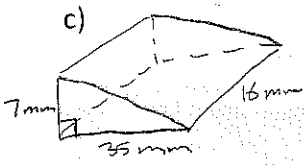
V = (72.25π)(7) = 505.75π

b)



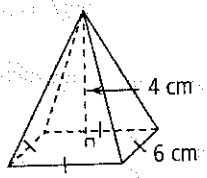
V = (15)(9.5) V = 142.5

c)



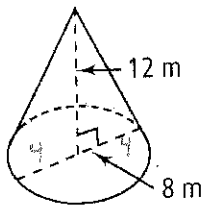
V = (122.5)(16) = 1960

d)



V = ⅓(36)(4) = 48

e)

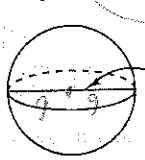


V = ⅓(16π)(12) = 64π

3. Find the volume and surface area of each sphere

a)

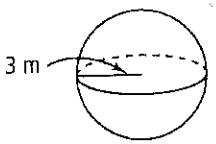
SA = 4π(81) = 324π



V = ⅓π(729) = 972π

b)

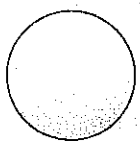
SA = 4π(9) = 36π



V = ⅓π(27) = 36π

4. Find the volume of the given sphere

CHALLENGE



S.A. = 16π cm²

16π = 4πr² / 4π 4π

4 = r²

2 = r

V = ⅓π(8)

V = 32/3 π

5. Find the volume in terms of π of a sphere with the given area: SA = 900π in.²

900π = 4πr² / 4π 4π

225 = r²

15 = r

V = ⅓π(3375)

V = 4500

6. The volumes of two similar figures are given. The surface area of the smaller figure is given. Find the surface area of the larger figure.

V = 125 in.³

V = 216 in.³

S.A. = 200 in.²

SIDE	SQUARE	CUBE
5/6	25/36	125/216
SR	AR	VR

CUBE ROOT

25/36 = 200/x

25x/25 = 7200/25

x = 288 in²

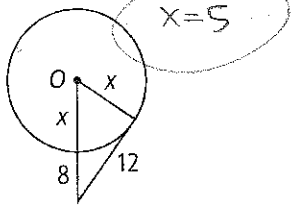
Chapter Twelve

1. Find x to the nearest tenth.

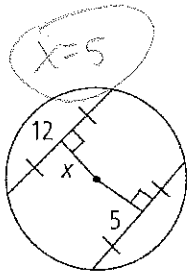
a) $x^2 + 144 = x^2 + 16x + 64$

$80 = 16x$

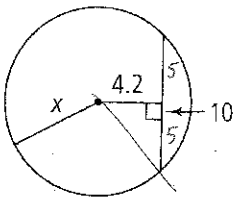
$x = 5$

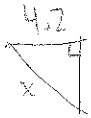


b) $x = 5$



c)





$5^2 + 4.2^2 = x^2$

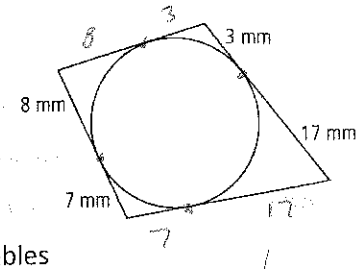
$25 + 17.64 = x^2$

$\sqrt{x^2} = \sqrt{42.64}$

$x = 6.53$

2. Find the perimeter

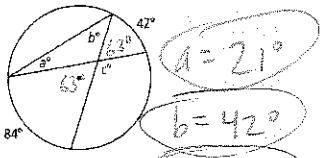
$P = 70$ mm



3. Find the values of the variables

a) $m\angle = \frac{1}{2}(84 + 42)$

$m\angle = 63°$



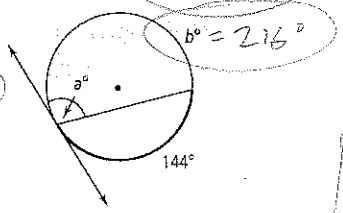
$a = 21°$

$b = 42°$

$c = 117°$

b) $a = 108°$

$b° = 216°$

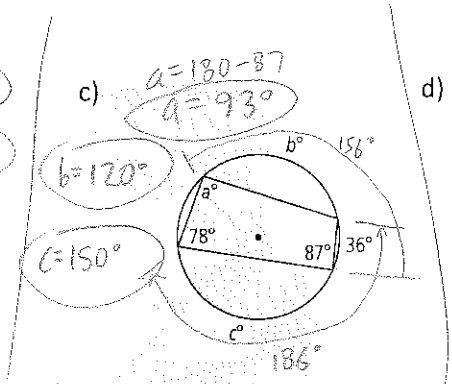


c) $a = 180 - 87$

$a = 93°$

$b = 120°$

$c = 150°$

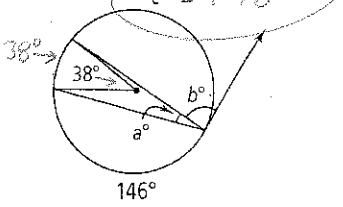


d)

$a = \frac{38}{2}$ $a = 19°$

$b = 88°$

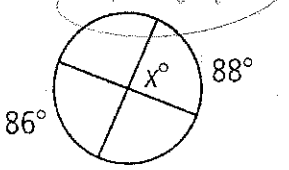
$c = 176°$



4. Find the value of x

a) $x = \frac{1}{2}(88 + 86)$

$x = 87°$



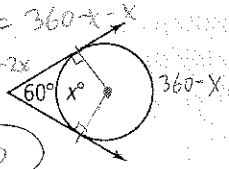
b) $60 = \frac{1}{2}((360 - x) - x)$

$120 = 360 - x - x$

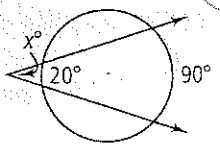
$120 = 360 - 2x$

$2x = 240$

$x = 120$



c) $x = \frac{1}{2}(90 - 20)$ $x = 35°$



5. Find center and radius of each circle

a) $x^2 + (y + 6)^2 = 16$

center: $(0, -6)$

radius: 4

b) $(x + 3)^2 + (y - 11)^2 = 12$

center: $(-3, 11)$

radius: $2\sqrt{3}$

6. Write standard equation of each circle

a) center (4, 3); $r = 8$

$(x - 4)^2 + (y - 3)^2 = 64$

c) center (–1, 6); $r = \sqrt{5}$

$(x + 1)^2 + (y - 6)^2 = 5$

7. Find equation of circle with given center that contains the given point:

center (–4, –3); point (2, 2)

$r = \sqrt{61}$

$(x + 4)^2 + (y + 3)^2 = 61$