Name:_____

Geometry – Final Exam Review

- GET ORGANIZED. Successful studying begins with being organized. Gather up all of your notes and review packets from this semester. Bring this packet with you to class every day.
- DO NOT FALL BEHIND. Do the problems that are assigned every night and come to class prepared to ask about the things you could not do.
- GET SERIOUS. The grade you earn on this exam is worth 20% of your semester grade.
- MAKE NOTES AS YOU WORK. As you do these problems, you will come across formulas, definitions, and examples that you will want to put on your notecard.
- START YOUR NOTECARD NOW: Your notecard must be in your own writing. You may put on it anything you think will help you on the exam. You may use the front and back. You will turn it in with your exam.
- There is nothing on the exam that is not reviewed. There is nothing on the exam that you have not studied this year. You will turn in your review packet after you take your test.
- This packet is worth a 1-weight quiz grade. This grade is based on:

  - ✓ Completion. I will check each day to make sure that day's work is done.
  - ✓ Correctness. I will check random problems to make sure they are correct, or that you made corrections as needed. Make corrections in another color!
  - ✓ Participation. I will keep track of people who work during class, ask questions, and answer questions. Everyone needs to participate in class discussions at least three times.

Date	Assignment	☑
Friday, June 1	Chapter 7	
Monday, June 4	Chapter 8	
Tuesday, June 5	Chapter 9	
Wednesday, June 6	Chapter 10	
Thursday, June 7	Chapter 11	
Friday, June 8	Make notecard	

Geometry Final Exam Review – Ch. 7 **Name:**_____

Hour: ____

Simplify the ratio.

1. $\frac{7\ cm}{21\ cm}$ 2. 18 ft: 9 ft 3. $\frac{9\ months}{1\ year}$ 4. $\frac{1\ ft}{8\ in}$ 5. $\frac{2\ ft}{3\ yds}$

Solve these proportions by cross-multiplying. Use the distributive property, if needed. Show your work!

6. $\frac{x}{5}=\frac{6}{4}$

7. 8 : 3 = x : 6

Proportion:

8. $\frac{2}{9}=\frac{x+2}{8}$

9. $\frac{x+4}{5}=\frac{3x-2}{10}$

Set up a proportion to solve the following problems.

10. If 25 Popsicles cost $20.00, then how much will 42 Popsicles cost?

Proportion:

11. Thomas finished 50 problems in 20 minutes. At this rate, how many problems can he do in 30 minutes?

Proportion:

In #12-15 use the following situation to answer the questions.

In 1984, Yogi Berra managed the New York Yankees. That year the Yankees won 87 games and lost 75 games.

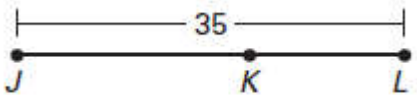
12. Find the ratio of wins to losses.

13. Find the ratio of wins to the number of games played.

14. Find the ratio of losses to wins.

15. Find the ratio of losses to the number of games played.

16. In the diagram, JK : KL is 3: 2 and JL = 35. Find JK and KL.



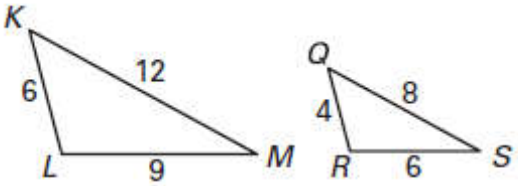
x = _____ JK = _____ KL = _____

17. In the diagram, *JK* : *KL* is 7 : 2 and *JL* =36. Find *JK* and *KL*.

x = _____ JK = _____ KL = _____

In the diagram, ΔKLM ~ ΔQRS.

18. List all pairs of congruent angles.



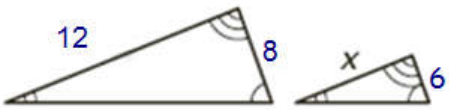
19. Fill in the blanks with the correct sides.

$$\frac{KL}{\quad} = \frac{KM}{\quad} = \frac{\quad}{RS}$$

20. Find the scale factor of ΔKLM to ΔQRS.

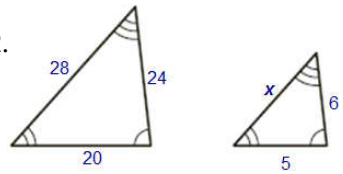
The two polygons are similar. Write a proportion and solve for x.

21.



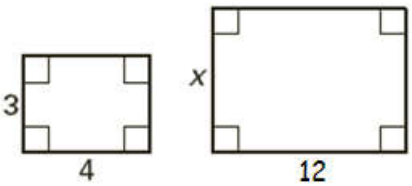
Proportion to find **x** and solve:

22.



Proportion to find **x** and solve:

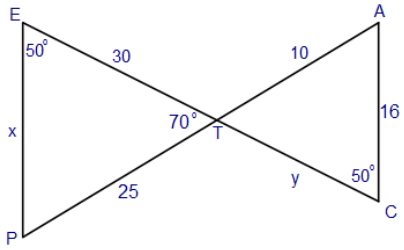
23.



Proportion to find **x** and solve:

Find the missing angles and set up proportions to find the missing side lengths.

24.

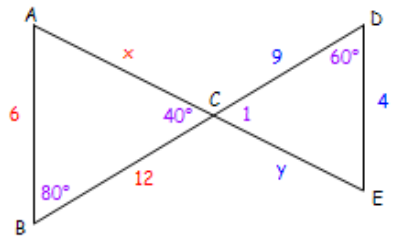


"Flipped" or "Twisted" Bow Tie?

$\Delta PET \sim \Delta$ _____

Proportion to find x: *Proportion to find y:*

25.



"Flipped" or "Twisted" Bow Tie?

$\Delta CAB \sim \Delta$ _____

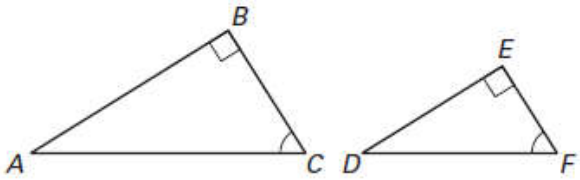
Proportion to find x: *Proportion to find y:*

$m\angle P$ = _____ $m\angle ATC$ = _____ $m\angle A$ = _____

$m\angle 1$ = _____ $m\angle A$ = _____ $m\angle E$ = _____

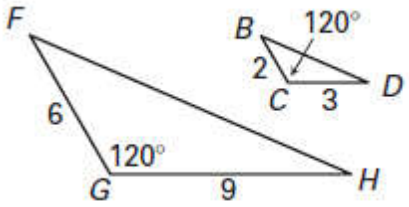
Determine whether the triangles are similar and explain why (AA~, SAS~, SSS~). If they are similar, write a similarity statement.

26.



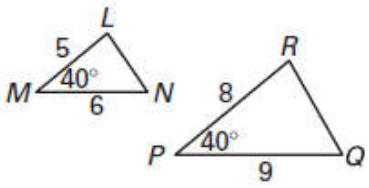
Similar? _____ why? _____ ΔABC ~ _____

27.



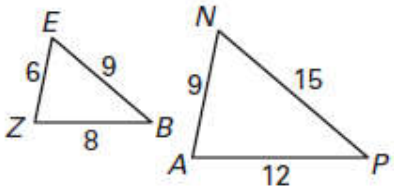
Similar? _____ why? _____ ΔFGH ~ _____

28.



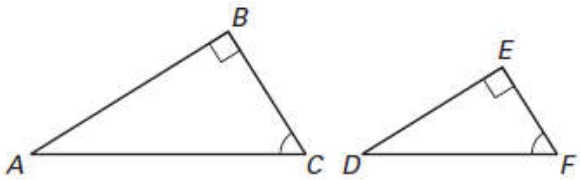
Similar? _____ why? _____ ΔLMN ~ _____

29.



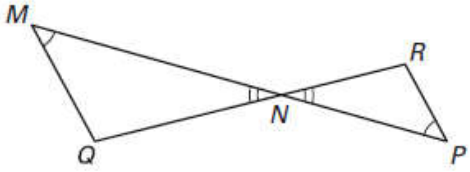
Similar? _____ why? _____ ΔEZB~ _____

30.



Similar? _____ why? _____ ΔDEF ~ _____

31.



Similar? _____ why? _____ ΔQMN ~ _____

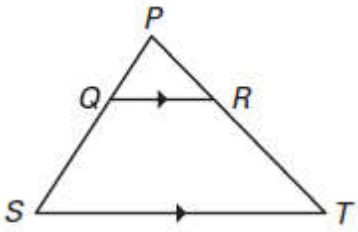
Complete the proportion using the figure at the right.

32. $\frac{PQ}{QS} = \frac{PR}{\quad}$

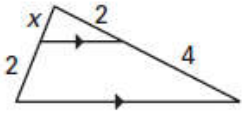
33. $\frac{\quad}{TP} = \frac{SQ}{SP}$

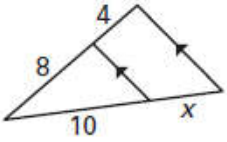
34. $\frac{PQ}{PS} = \frac{\quad}{PT}$

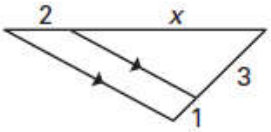
35. $\frac{TR}{\quad} = \frac{SQ}{QP}$



Find the value of x.

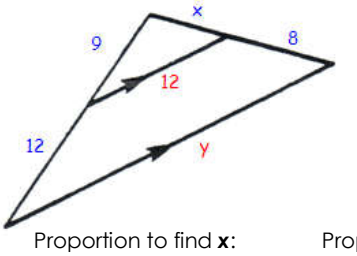
36. 

37. 

38. 

Separate the picture into two labeled triangles and find the missing information.

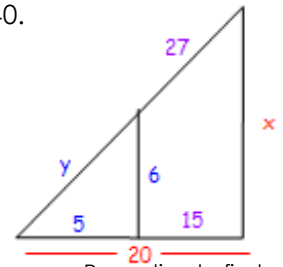
39. *Separate into two labeled triangles.*



Proportion to find **x**:

Proportion to find **y**:

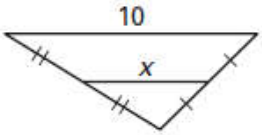
40. *Separate into two labeled triangles*

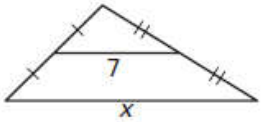


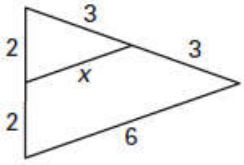
Proportion to find **x**:

Proportion to find **y**.

Use the <u>MIDSEGMENT FORMULA</u> to solve for the length of the variable.

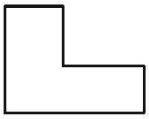
41. 

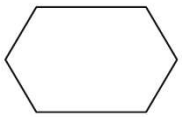
42. 

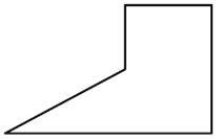
43. 

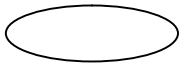
Geometry Final Exam Review – Ch. 8 **Name:**_____
Hour: ____

Decide whether each figure is a *concave polygon*, a *convex polygon*, or *not a polygon*.

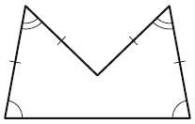
1. 

2. 

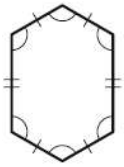
3. 

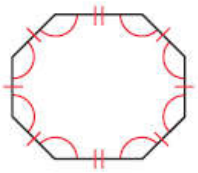
4. 

Decide whether the polygon is *equilateral, equiangular,* or *neither*.

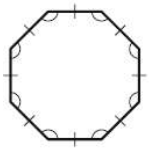
5. 

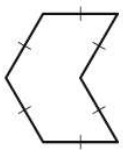
6. 

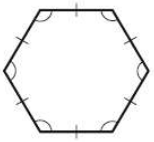
7. 

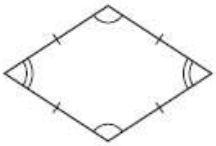
8. 

Decide whether the polygon is *regular*. Explain your answer.

9. 

10. 

11. 

12. 

13. What is the formula for the sum of the **interior** angles of a polygon with n sides? _____

For each regular polygon, find the SUM of the interior angles and the measure of EACH interior angle.

14. Octagon (n = 8)

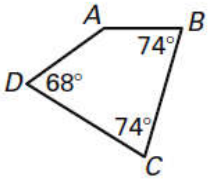
15. Polygon with 15 sides

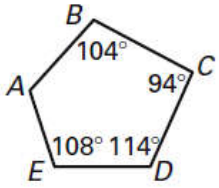
16. 7-sided polygon

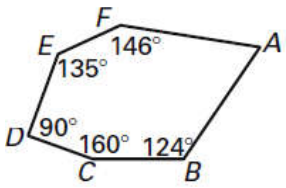
SUM = _____ SUM = _____ SUM = _____

EACH = _____ EACH = _____ EACH = _____

Find the measure of ∠A.

17. 

18. 

19. 

20. What is the sum of the **exterior** angles of a polygon, no matter how many sides it has? _____

For each regular polygon, find the SUM of the exterior angles and the measure of EACH exterior angle.

21. Octagon (n = 8)

SUM = _____

EACH = _____

22. Polygon with 15 sides

SUM = _____

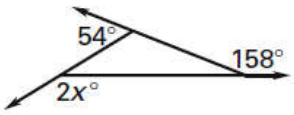
EACH = _____

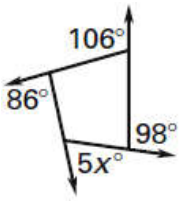
23. 7-sided polygon

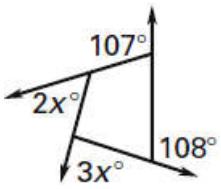
SUM = _____

EACH = _____

Find the value of x.

24. 

25. 

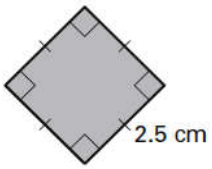
26. 

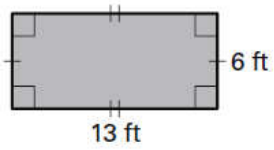
27. How do you find the area of a square?_____

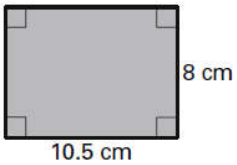
28. How do you find the area of a rectangle?_____

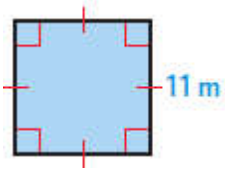
29. How do you find the area of a parallelogram?_____

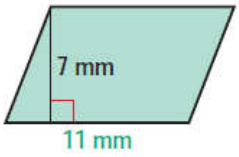
Find the area of each square, rectangle, or parallelogram.

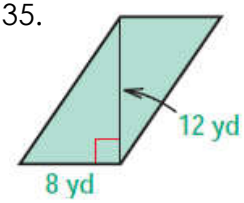
30. 

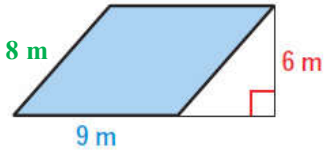
31. 

32. 

33. 

34. 

35. 

36. 

Sketch the figure and find its area.

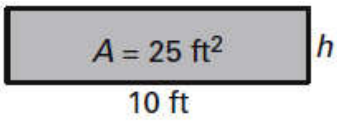
37. a rectangle with a base of 7.2 meters and height of 4 meters.

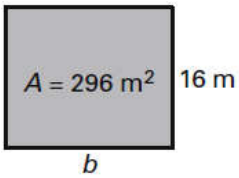
38. a square with side lengths of 7 yards

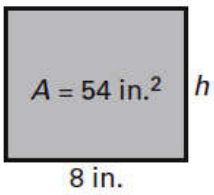
39. a parallelogram with base 24 cm and height 5 cm

40. a parallelogram with base 18 in and height 25 in

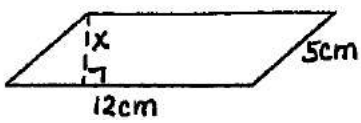
Given the area of the rectangle or parallelogram, find the missing side length.

41. 

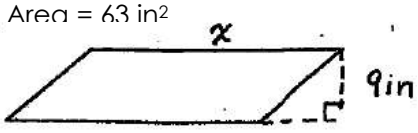
42. 

43. 

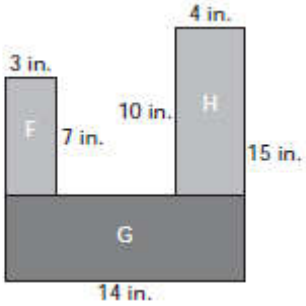
44. Area = 48 cm²

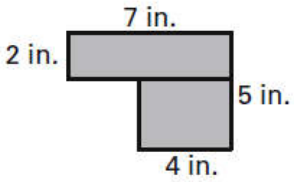


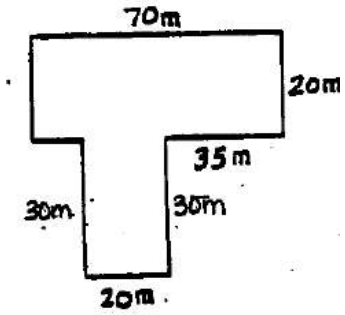
45. Area = 63 in²



In Exercises 46-48, find the area of the polygon made up of rectangles.

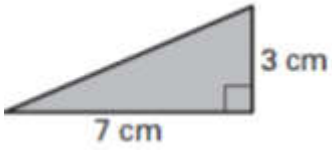
46. 

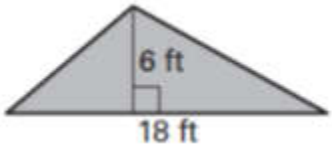
47. 

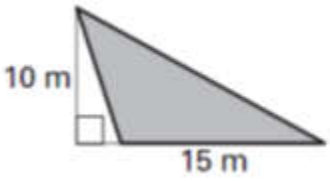
48. 

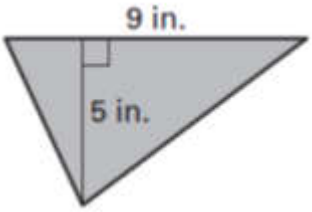
49. How do you find the area of a triangle?_____

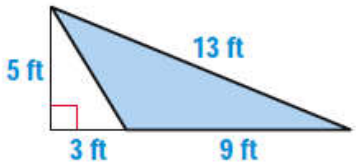
Find the area of the shaded triangle.

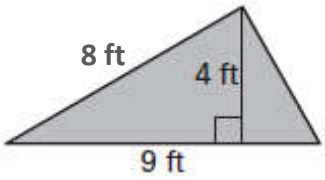
50. 

51. 

52. 

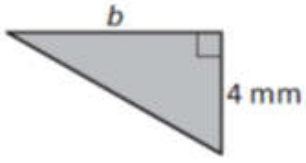
53. 

54. 

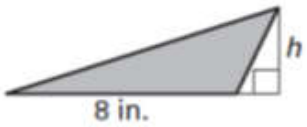
55. 

A gives the area of the triangle. Find the missing measure.

56. A = 14 mm^2



57. A = 12 in^2



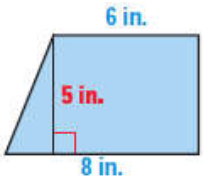
58. If the area of a triangle is 45 yd^2 and the base is 6 yds, find the height.

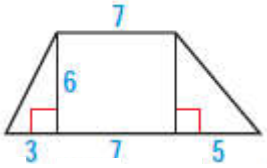
Fill in the following formulas.

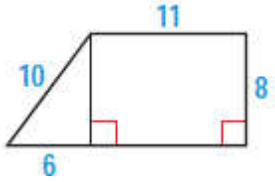
59. Area of a trapezoid _____ 60. Area of a rhombus _____

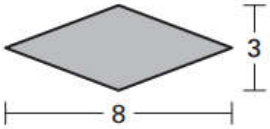
61. Area of a regular polygon _____

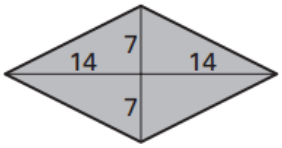
Find the area of each shape.

62. 

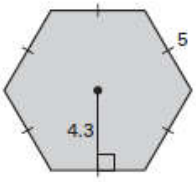
63. 

64. 

65. 

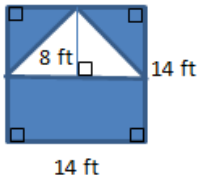
66. 

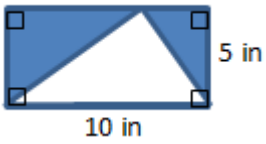
67. A rhombus with diagonals of length 14 in and 6 in.

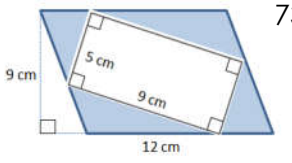
68. 

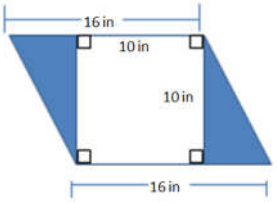
69. A regular octagon with sides of length 5mm and apothem of 9.7 mm.

Find the area of the shaded region.

70. 

71. 

72. 

73. 

Area of square=_____ Area of rectangle=_____ Area of parallelogram=_____ Area of parallelogram=_____

Area of triangle=_____ Area of triangle=_____ Area of rectangle=_____ Area of square=_____

Shaded area=_____ Shaded area=_____ Shaded area=_____ Shaded area=_____

State the FORMULA for CIRCUMFERENCE of a circle: _____

EXACT: use _____ APPROX: use _____

Find the exact and approximate CIRCUMFERENCE of each circle.

74.

EXACT circumference _____

APPROX circumference _____

75.

EXACT circumference _____

APPROX circumference _____

76. Diameter = 20 mm

EXACT circumference _____

APPROX circumference _____

77. Radius = 4 cm

EXACT circumference _____

APPROX circumference _____

State the FORMULA for AREA of a circle: _____

EXACT: use _____ APPROX: use _____

Find the exact and approximate AREA of each circle.

78.

EXACT area _____

APPROX area _____

79.

EXACT area _____

APPROX area _____

80. Radius = 3 m

EXACT area _____

APPROX area _____

81. Diameter = 8 in.

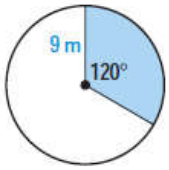
EXACT area _____

APPROX area _____

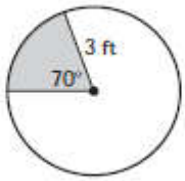
State the FORMULA for finding the AREA OF A SECTOR: _____

Find the area of each sector.

82.

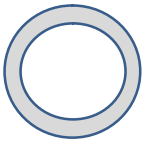


83.



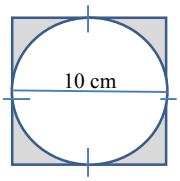
Find the area of the shaded region.

84.

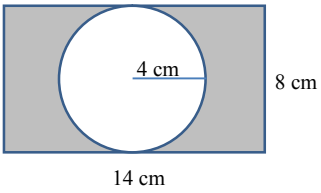


Radius of big circle = 6cm
Radius of small circle = 5cm

85.



86.



Exact area of big circle:_____

Exact area of small circle:_____

Area of Shaded region: _____

Exact area of square:_____

Exact area of circle:_____

Area of Shaded region: _____

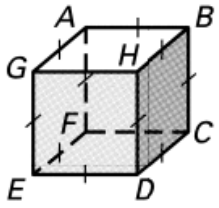
Exact area of rectangle:_____

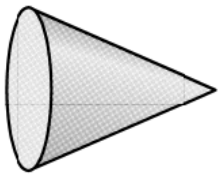
Exact area of circle:_____

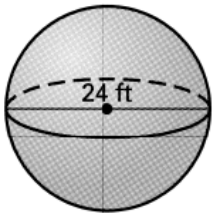
Area of Shaded region: _____

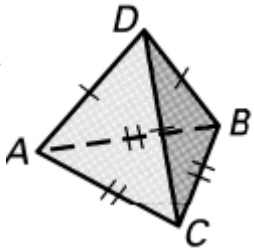
Geometry Final Exam Review – Ch. 9 **Name:**_____
Hour: ____

Tell whether the solid is a polyhedron. If so, name the solid.

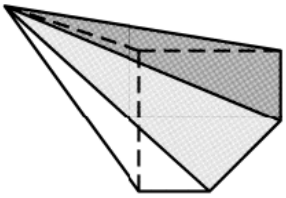
1. 

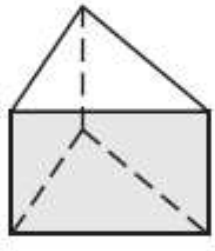
2. 

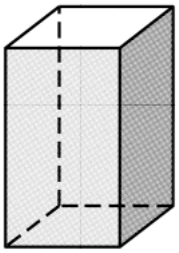
3. 

4. 

Name the polyhedron. Then count the number of faces and edges.

5. 

6. 

7. 

Name: Name: Name:

Faces: Faces: Faces:

Edges: Edges: Edges:

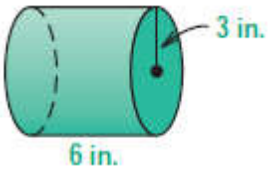
Use Euler's formula F + V = E + 2 to find the number of faces, edges or vertices.

8. A prism has 6 faces and 10 edges. How many vertices does it have?

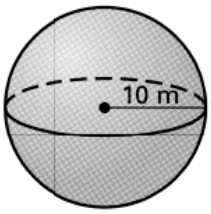
9. A pyramid has 6 faces and 8 vertices. How many edges does it have?

10. A pyramid has 12 edges and 7 vertices. How many faces does it have?

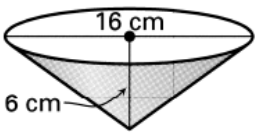
Name the solid then find the <u>SURFACE AREA</u> to the nearest whole number.

11. 

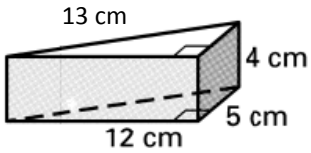
Name:

12. 

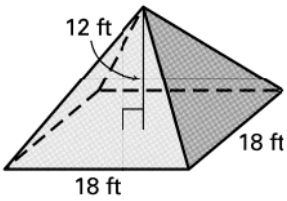
Name:

13. 

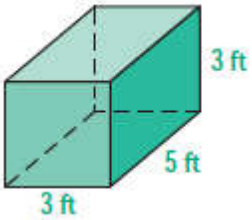
Name:

14. 

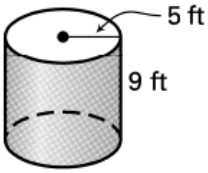
Name:

15. 

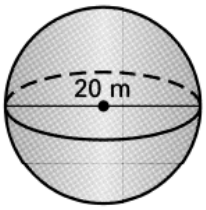
Name:

16. 

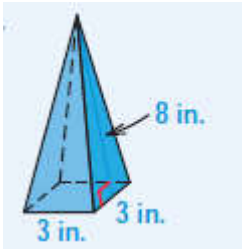
Name:

17. 

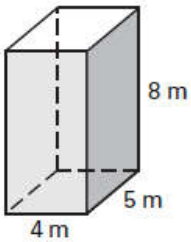
Name:

18. 

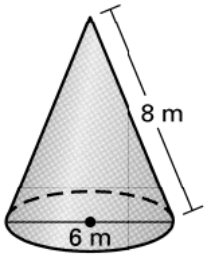
Name:

19. 

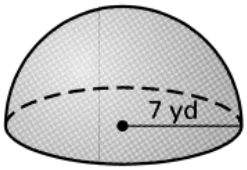
Name:

20. 

Name:

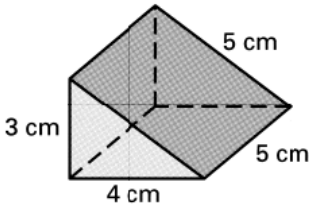
21. 

Name:

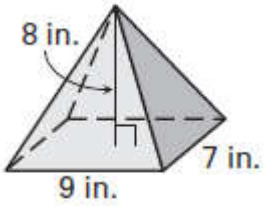
22. 

Name:

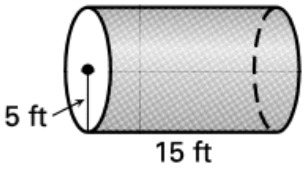
Name the solid. Then find the <u>VOLUME</u> of the solid.

23. 

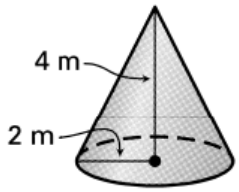
Name:

24. 

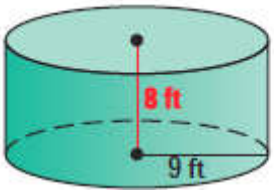
Name:

25. 

Name:

26. 

Name:

27. 

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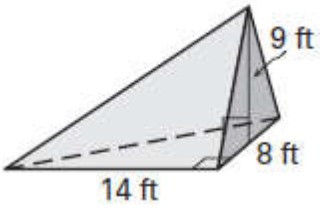
28. 

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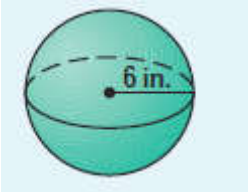
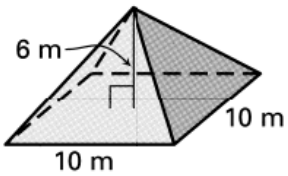
29. 

Name:

30. 

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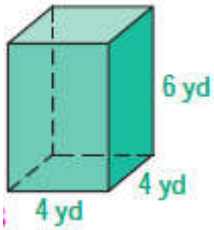
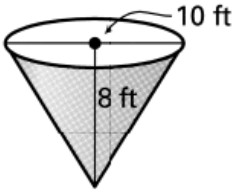
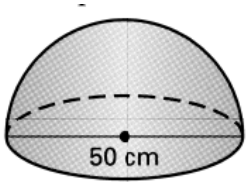
31. 

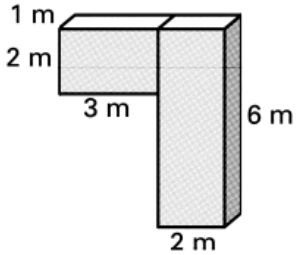
Name:

32. 

Name:

33. 

Name:

34. 

Geometry Final Exam Review – Ch. 10

Name:_____
Hour: ____

Find the value of each expression.

1. $\sqrt{16}$ = ____ vs. 16^2 = ____ 2. Square root of 4 = _____ 3. 12 squared = _____ 4. Square of 8 = _____

List the perfect squares from 1 to 225

Use a factor ladder to simplify each radical…show EXACT answers only. NO DECIMALS!

5. $\sqrt{18}$ 6. $\sqrt{32}$ 7. $\sqrt{300}$ 8. $\sqrt{24}$

9. $3\sqrt{20}$ 10. $\sqrt{5}\cdot\sqrt{10}$ 11. $9\sqrt{5}\cdot 4\sqrt{20}$ 12. $(2\sqrt{3})^2$

Use the calculator to find the following rounded to the nearest 100th (two decimal places).

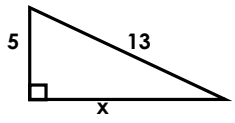
13. $\sqrt{39}\approx$_____ 14. $\sqrt{179}\approx$_____ 15. $8\sqrt{3}\approx$_____ 16. $\sqrt{\frac{2}{7}}\approx$_____

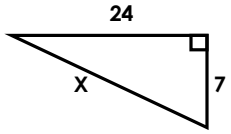
17. **State the Pythagorean Theorem:** _____ What is it used for?_____

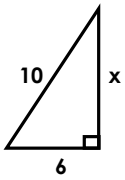
Can the given side lengths make a right triangle. Answer Yes or No. YOU MUST SHOW WORK!

18. 12, 23, 35 19. 5, 13, 12 20. $\sqrt{3}, \sqrt{4}, \sqrt{5}$

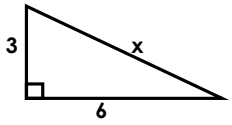
Use the Pythagorean Theorem to find the following missing side. An equation MUST be given. Simplify radicals if necessary.

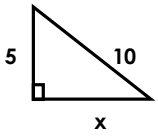
21. 

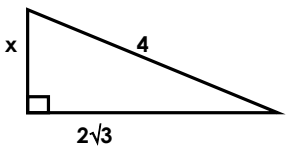
22. 

23. 

Equation: _____ x = _____ Equation: _____ x = _____ Equation: _____ x = _____

24. 

25. 

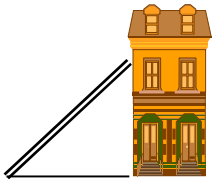
26. 

Equation: _____ x = _____ Equation: _____ x = _____ Equation: _____ x = _____

LABEL THE PICTURES FOR THE FOLLOWING STORY PROBLEMS!

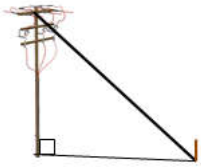
27. A 15-foot ladder is leaning against a wall. It reaches up the wall 10 feet. How far is the bottom of the ladder from the wall?

Equation:



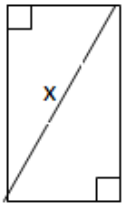
28. A 30-ft wire is attached to an electrical pole. The wire attaches to a stake on the ground. If the stake is 18 feet from the base of the pole, How tall is the pole?

Equation:



29. How long is the hypotenuse of a doorway that is 9 feet by 4 feet?

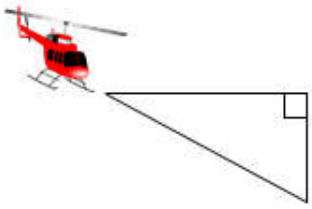
Equation:



Can a mattress that is 10 feet long fit through the doorway?_____

30. A helicopter flies 9 miles due east and then 6 miles due south. How far is it from its starting point?

Equation:

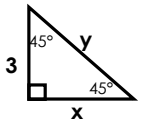


Remind yourself of the 45-45-90 and 30-60-90 triangle rules!

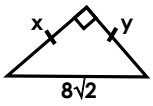
45-45-90: hypotenuse = leg · $\sqrt{2}$ **30-60-90: hypotenuse = short leg · 2** **Long leg = short leg · $\sqrt{3}$**

Draw and label a 45-45-90 Triangle	**Draw and label a 30-60-90 Triangle**

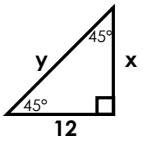
Use the special triangle rules to find the missing sides of the following triangles.

31. 

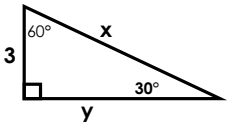
x = _____ y = _____

32. 

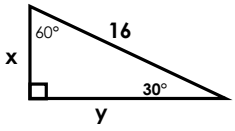
x = _____ y = _____

33. 

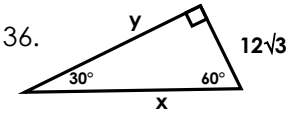
x = _____ y = _____

34. 

x = _____ y = _____

35. 

x = _____ y = _____

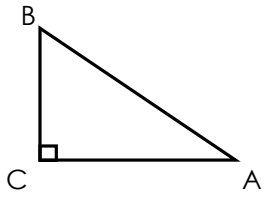
36. 

x = _____ y = _____

37. Use a CALCULATOR set in DEGREE mode to find the following values. Round answers to nearest hundredth.

a) sin 45 = _____ b) tan 30 = _____ c) cos 90 = _____ d) cos 60 = _____ e) sin 60 = _____

Fill in the ratios for each trig function using the words: opposite, adjacent and hypotenuse.

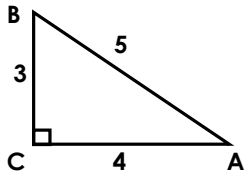


sin = cos = tan =

How do we remember these definitions? _____

For each triangle, give the sin, cos, and tan in fraction form. Find the missing sides where needed and reduce all fractions!

38.

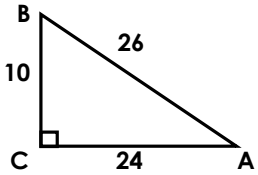


sin A_____ sin B_____

cos A_____ cos B_____

tan A _____ tan B _____

39.

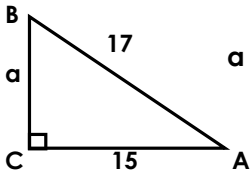


sin A_____ sin B_____

cos A_____ cos B_____

tan A _____ tan B _____

40.



a = ____

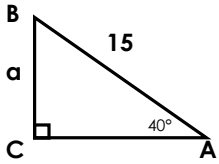
sin A_____ sin B_____

cos A_____ cos B_____

tan A _____ tan B _____

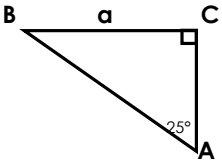
Use sin, cos, or tan proportion to solve for the variable.

41.



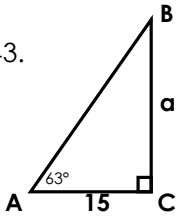
a = _____

42.



a = _____

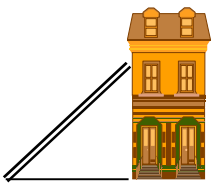
43.



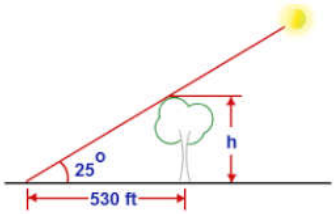
a = _____

LABEL THE PICTURES FOR THE FOLLOWING STORY PROBLEMS!

44. Donovan leans a 15-ft ladder against the wall. The ladder makes a 70° angle with the ground. How far up the building does the ladder reach?

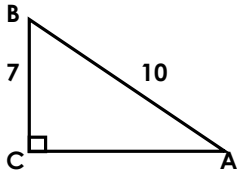


45. A tree casts a shadow 530 feet long when the angle of elevation to the sun is 25°. How tall is the tree?



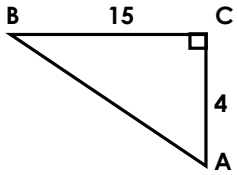
Use SOH CAH TOA to find the missing ANGLE. Write an equation and use the INVERSE. Round to nearest 100th.

46.



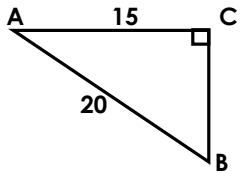
m∠A = _____

47.



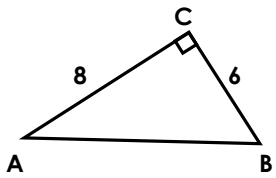
m∠A = _____

48.



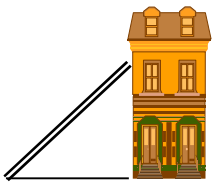
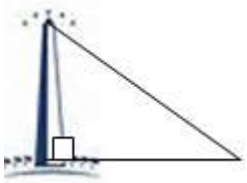
m∠A = _____

49.



m∠A = _____

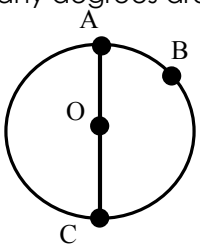
LABEL THE PICTURES FOR THE FOLLOWING STORY PROBLEMS!

50. Stefan leans a 20-ft ladder against a wall. The base of the ladder is 3 feet from the wall. What ANGLE does the ladder make with the ground? 	51. Chelsea visited the Washington Monument which is 550ft tall on her summer vacation. She stood 400 feet away from the base of the monument to take a picture. At what ANGLE did she need look up to ensure that she captured the top of the monument in her picture? 

Geometry Final Exam Review – Ch. 11 **Name:** _____

Hour: _____

1. How many degrees are in a circle?_____ 2. How many degrees are in a semicircle? _____



Name each of the following for circle O.

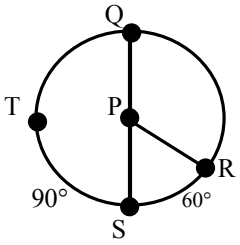
3. A semicircle _____

4. Two minor arcs _____ and _____

5. Two major arcs_____ and _____

6. In a circle, the measure of the **central angle** is the _____ the measure of the arc.

Find the measure of each angle for each arc of circle P.



7. m∠SPR_____ 8. $m\overset{\frown}{TSR}$ _____

9. $m\overset{\frown}{STQ}$ _____ 10. $m\overset{\frown}{RSQ}$ _____

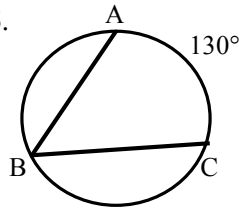
11 . $m\overset{\frown}{TQ}$ _____ 12. $m\overset{\frown}{TSR}$ _____

13. In a circle, the measure of the **inscribed angle** is the _____ the measure of the arc.

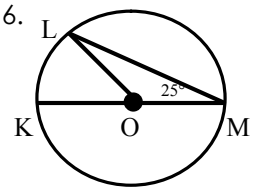
14. What is the measure of an angle that is **inscribed in a semicircle**?_____

Find the measure of the following angles and arcs.

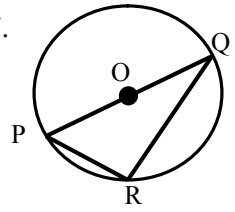
15.



16.



17.



m$\overset{\frown}{ABC}$_____ m$\overset{\frown}{LR}$_____ m$\overset{\frown}{PRQ}$_____

m∠ABC_____ m∠LOK_____ m∠PRQ_____

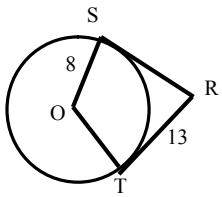
18. What is a tangent segment?_____

19. What kind of angle is formed when a radius and a tangent meet? _____

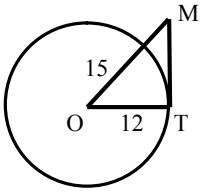
20. If two tangent segments are drawn from a point outside the circle, these segments are _____

Find the lengths of the following segments.

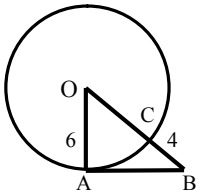
21.



22.

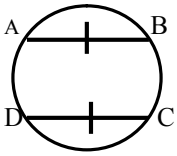


23.

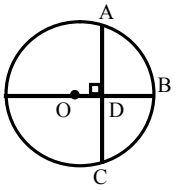


SR = _____ OT = _____ MT = _____ OC = ____ OB = _____ AB = ____

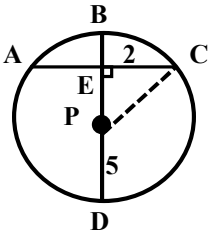
24. Equal chords mean _____ arcs.



25. If a diameter is perpendicular to a chord, then it_____ the chord and the arc.



Using the given picture, find the following lengths.



Note: PD = 5, BE = 2

26. PB = _____ 27. PC = _____

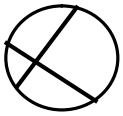
28. PE = _____ 29. CE = _____

30. AE = _____

Draw the following.

31. a triangle inscribed in a square 32. A circle inscribed in a triangle 33. A triangle circumscribed about a circle

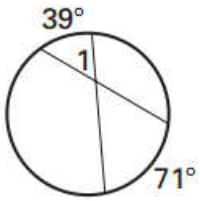
What is the rule for finding the angle in a picture that is Chord-Chord



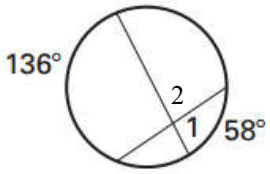
_____

Find the following angles.

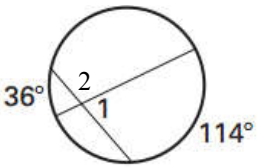
34. m∠1=_____



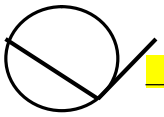
35. m∠1=_____ m∠2=_____



36. m∠1=_____ m∠2=_____



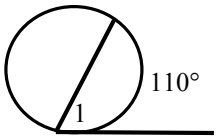
What is the rule for finding the angle in a picture that is tangent-chord



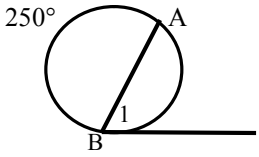
_____

Find the following angles.

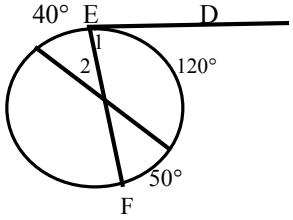
37. m∠1=_____



38. m$\overset{\frown}{AB}$=_____ m∠1=_____

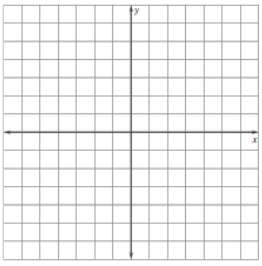


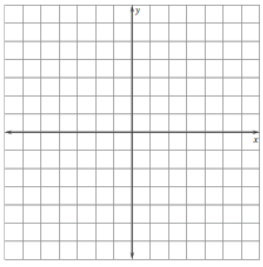
39. m∠1=_____ m∠2=_____

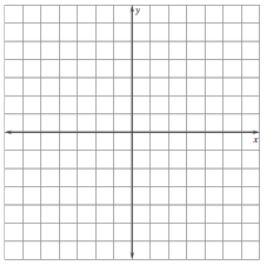


Identify the center and radius of the circle, then graph the circle.

40. $(x-2)^2+(y-2)^2=4$ 42. $(x-1)^2+(y+4)^2=9$ 43. $x^2+(y+2)^2=16$

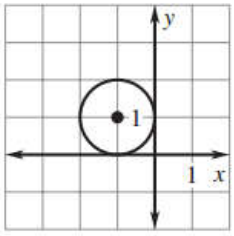






Write an equation for the following circles.

44.



45.