### **PART I: Similarity**

Chapter 6: Similarity 6.1 to 6.6

Complete each statement:



7) Pentagon FGHIJ ~ pentagon KLMNO.



Find the value of *x*:

x =

x =







10)

11)

8)



14) In the diagram, PQRS ~ WXYZ

**b**) Find the values of *x*, *y*, and *z*:

**a**) Find the scale factor of *PQRS* to *WXYZ*:

*x* = \_\_\_\_\_ *y* = \_\_\_\_ *z* = \_\_\_\_







x =



15) Determine whether the two triangles are similar. If they are similar, write the similarity statement:



1) Classify each statement as true or false:

- **a**) The geometric mean between 6 and 10 is  $2\sqrt{15}$ :
- **b**) When simplified  $\frac{1}{\sqrt{8}}$  equals  $\frac{\sqrt{2}}{4}$ :\_\_\_\_\_
- c) A triangle with sides having lengths 5, 10, and 12 must be acute:
- 2) The diagram shows a right triangle with the altitude drawn to the hypotenuse. Find the values of x, y and z.



Solve for *x*:



Find the value of *x*. Find lengths correct to the nearest integer and angles correct to the nearest degree.



Find the value of each variable. Write your answers in simplest radical form.



15) You are measuring the height of a Ferris wheel at an amusement park. You are standing 125 feet from its base. You measure the angle of elevation from a point on the ground to the top of the Ferris wheel to be 51°. Estimate the height of the Ferris wheel. Round your answer to the nearest foot.

Solve the right triangle. Round decimal answers to the nearest tenth.



## Part III: Quadrilaterals

#### Chapter 8: Quadrilaterals 8.1 to 8.6

Questions 1-7 refer to the diagram. HOPE is a parallelogram. Find the indicated lengths or angle measures.





Solve for *x*:



For Questions 11 – 14:  $\overline{IJ}$  is the median / midsegment of trapezoid *EFGH*. Find the value of x.

	EF	HG	IJ	x	
11)	7	13	x		
12)	$3\frac{1}{2}$	x	$5\frac{1}{4}$		
13)	18.3	x	21.2		
14)	9	<i>x</i> + 8	X		H G

Give the most descriptive name for quad. *ABCD*:

- **15**)  $\angle A \cong \angle C$  and  $\angle B \cong \angle D$ :
- **16**)  $\overline{AB} \cong \overline{BC} \cong \overline{CD} \cong \overline{DA}$  and  $\angle A \cong \angle B$ :
- **17**)  $\overline{AB} \parallel \overline{DC}, \ \overline{AD} \cong \overline{BC}, \ \text{and} \ DC > AB$ :

Questions 18-19 refer to the diagram. UVXW is a parallelogram.





Complete:

23) The sum of the measures of the exterior angles of any convex polygon is \_\_\_\_\_

24) The measure of each exterior angle of a regular 15-sided polygon is \_\_\_\_\_

- 25) If  $m \angle A = 3x + 3$ ,  $m \angle B = 2x + 8$ , and  $m \angle C = 2x + 1$ , find the numerical measures of each angle of  $\triangle ABC$ .  $m \angle A = m \angle B = m \angle C =$
- 26) The measure of each interior angle of a regular polygon is 170°. How many sides does the polygon have?
- **27**) The sum of the measures of the angles of a convex polygon with *n* sides is \_\_\_\_\_

Find the indicated measure:

28)  $m \angle PSQ =$  29) XV =

**30**) What is the measure of an interior angle and an exterior angles of a regular 30-gon?

Find the value of *x*:



# **PART IV: Properties of Circles**



Find x: 1) 2)  $(15 \times 10^{-1})$  2)  $(15 \times 10^{-1})$   $(160^{\circ})$   $(160^{\circ})$ 





*x* = \_\_\_\_\_

*x* = \_\_\_\_\_



5) The measures of the angles of a triangle are in the ratio of 2:3:5. What is the measure of the smallest angle?

Find the value of each variable:



For Questions 12 - 17: In  $\bigcirc O$ ,  $m \angle 1 = 40^{\circ}$ . Find each measure:

 12)  $\widehat{mAD} = \_$ \_\_\_\_\_

 13)  $m\angle AOB = \_$ \_\_\_\_\_

 14)  $\widehat{mAB} = \_$ \_\_\_\_\_

 15)  $\widehat{mABD} = \_$ \_\_\_\_\_

 16)  $m\angle C = \_$ \_\_\_\_\_

 17)  $m\angle BAO = \_$ \_\_\_\_\_

In Questions 18 - 21, O is the center of the circle.

(18)

$$PQ = 7, \ \angle P \cong \angle R, \ PR = ?$$



 $\widehat{mGH} = 80^\circ, \ m \angle E = ?$ 

### PART V: Measuring Length and Area



Find the area of each figure:

20)

- 1) A rectangle with width 5 m and length 13 m :
- 2) A triangle with base 7 cm and height 10 cm : \_\_\_\_\_
- 3) An equilateral triangle with side 10: \_\_\_\_\_
- 4) A rhombus with diagonals 6 cm and 8 cm:
- 5) A trapezoid with bases 7 and 10, and height 6:
- 6) A regular hexagon with radius 4:

7) A circle with radius  $5\sqrt{2}$ :





OM = 29, MN = 40, OP = ?



8

**19**)

21)



Find the area of the parallelograms:

Area =

12



40° 5 3 10\*\*

18)



30°

5"

Area =  $\_$ 

Find the indicated measure:



# PART VI: Surface Area and Volume of Solids

Complete the table for the regular square pyramid shown.

	Base	Lateral	1	h	I A		V
	Edge	Edge	l	п	L.A.	<i>I</i> .A.	V
1)	18	15					
2)			$5\sqrt{2}$	5			



Chapter 12: S. A. and Volume of Solids 12.1 to 12.7

Complete the table for a cylinder with dimensions r and h.

	r	h	L.A.	T.A.	V
3)	3	5			
4)	4		$24 \pi$		

Find the volume and surface area of the prisms and cylinder:



Find the surface area and volume of the figure. Round your answers to two decimal places, if necessary.

