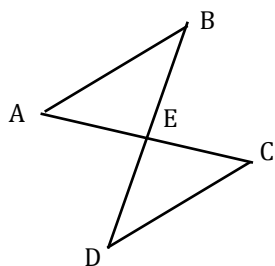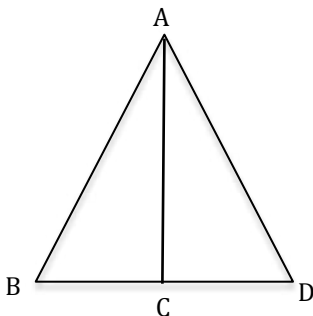# *Geometry Semester 2 Review*

Chapter 8

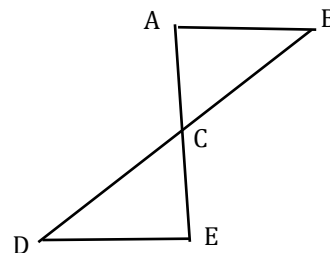*Identify the right triangle theorem that proves that the triangles are congruent.*

1. E is the midpoint of $\overline{BD}$
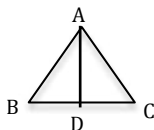 $\overline{AB} \cong \overline{CD}$, $\overline{AC} \perp \overline{BD}$

2. $\overline{AC} \perp \overline{BD}$, $\overline{AC}$ bisects $\angle BAD$

3. $\overline{AB} \perp \overline{AE}$ and $\overline{DE} \perp \overline{AE}$, C is the midpoint of $\overline{AE}$

4.   Given: $\triangle ABC$ is Isosceles with altitude $\overline{AD}$
      Prove: $\overline{BD} \cong \overline{CD}$

Statements	Reasons
1.	1.
2.	2. Definition of Isosceles
3. $\triangle ADB$ and $\triangle ADC$ are right triangles	3. Definition of altitude, perpendicular and right angles.
4. $\overline{AD} \cong \overline{AD}$	4.
5. $\triangle ADB \cong \triangle ADC$	5.
6.	6.

5. What does CPCTC stand for? _____

6. True or False: You can use CPCTC only after you prove triangles are congruent. _____

7. Draw a picture of isosceles triangle MOB with vertex angle O. Which sides are congruent and which angles are congruent?
    Sides: _____   Angles: _____
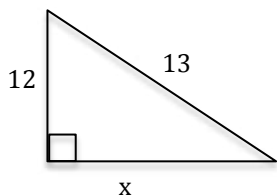
Chapter 9

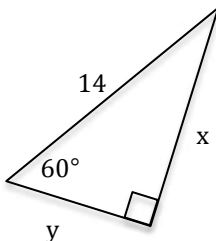Simplify.

1. $\frac{7}{\sqrt{7}}$

2. $\frac{1}{\sqrt{3}}$
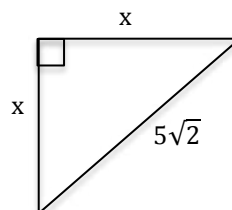
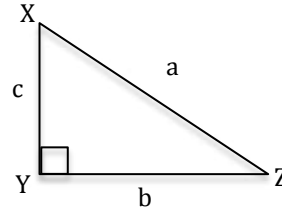3. $\frac{3}{\sqrt{6}}$

Find the indicated values.

4.

5.

6.

Given triangle XYZ, find each of the following using ∠X as the reference angle. Which trig function is it?

7. $\frac{opp}{adj}$ =

8. $\frac{opp}{hyp}$ =

9. $\frac{adj}{hyp}$ =
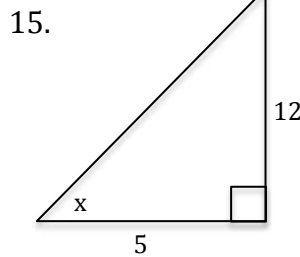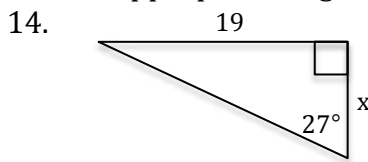
10. What is the side opposite angle Z?

Use your calculator to find each value. Round to the nearest hundredth.
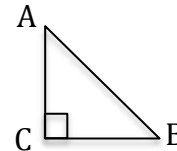
11. tan42°=_____

12. cot33°=_____

13. $\tan^{-1}\left(\frac{3}{4}\right)$=_____

Use the appropriate trig ratio to find x.

14.

15.

16. Match each of these.

_____ tan A   a. $\frac{AC}{BC}$

_____ tan B   b. $\frac{BC}{AC}$

_____ cot A

_____ cot B

Match each of the following.

17. sin A = _____

sin B = _____

csc A = _____

csc B = _____

a. $\frac{BC}{AB}$ c. $\frac{AB}{BC}$

b. $\frac{AC}{AB}$ d. $\frac{AB}{AC}$
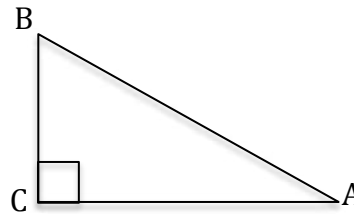
Find x, y and z in each triangle.

18.

19.
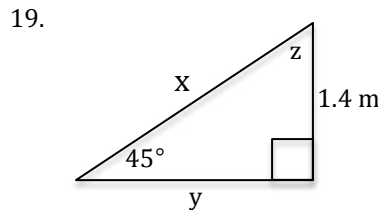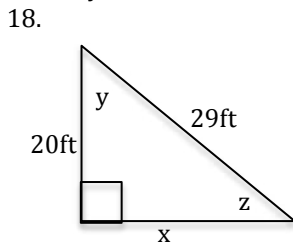
20. Paul is flying a kite on the beach. He measures a 42° from his eye to the kite. He also measures that he is standing 100 feet away from the spot directly below the kite.

a. Draw and label a picture for this problem.

b. How much kite string is out?

c. How high is the kite from the ground if you are 5 ft tall?

21. Suppose ∠A is an angle such that cosA < sinA. Select **all** angle measures that are possible values for ∠A.

____a. 25°   ____b. 35°   ____c. 45°   ____d. 55°   ____e. 65°   ____f. 75°

22. True or False: In a right triangle with the right angle at C, Cos A = Sin B

23. In triangle ABC with right ∠A, complete the true statement: ∠C is complementary to ∠_____.

24. Find the area of the triangle.   Work:

M
64°
37mm   40mm
A   T

Area = _____

Use the Law of Sines or the Law of Cosines to find x.
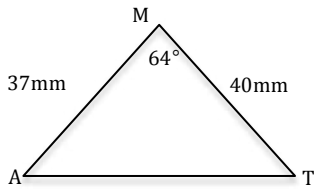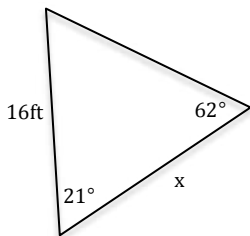 25.   26.

16ft   62°
21°   x

22°
5   7
x
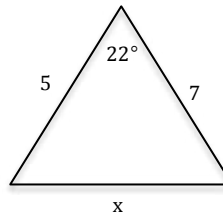
X = _____   X = _____

Chapter 10

1. If L ⊥ E , N ⊥ L and E ⊥ I, then name all pairs of parallel lines.

L   I
N
E
S

____//____

____//____//_____
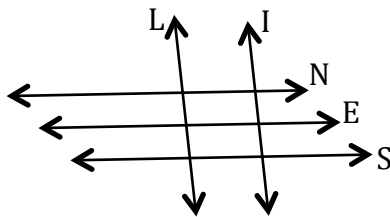
True or false?
____2. Opposite angles in a rectangle are congruent.   ____5. Diagonals in a square are perpendicular.
____3. A square is a rhombus.   ____6. All angles in a rhombus are congruent.
____4. A rectangle has congruent perpendicular diagonals.   ____7. Opposite sides in a trapezoid are congruent.
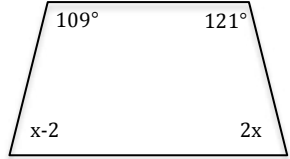
8. Lauryn drew a quadrilateral. She used a protractor to measure all four angles. How many pairs of angles must be congruent for the quadrilateral to be a parallelogram. Draw a picture and explain.

9. Give two reasons why a rhombus is not a rectangle.

10. In a construction, what should you always begin with?

11. What is the sum of the interior angles in a 17-gon?	12. What is the measure of each interior angle in a regular octagon?	13. Draw a regular quadrilateral. Include all necessary marks. What is another name for this

		shape?
14. Draw a concave quadrilateral. Why is it concave?	15. What is the name of a 12-sided polygon?	16. Find x 109° 121° x-2 2x
17. What is the measure of each exterior angle in a regular septagon?	18. What is the sum of the exterior angles of a regular decagon?	
19. How many sides does a regular polygon have if each interior angle measure equals each exterior angle measure?	20. What is the measure of an exterior angle if it is adjacent to an interior angle of a polygon that measures 115°?	

21. How many sides does a polygon have if each exterior angle measures: 11.61°?

22. Find x.

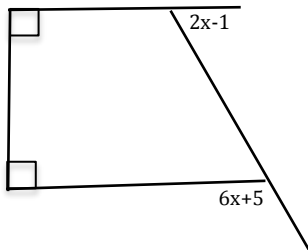2x-1

6x+5

List all quadrilaterals with the given characteristics.
23. No parallel sides.

24. Congruent diagonals.

25. True or False: A square is the intersection of a rectangle and a rhombus.

26. A square has diagonals that are perpendicular and congruent.

Classify each specifically based on the given information. Briefly explain why.
27. Slope AB = -1/2   slope BC = 2
    slope CD = -1/2   slope DA = 3
AB = 4.2; BC = 4.2; CD = 5.3; DA = 5
29. Diagonals in a _____ are perpendicular and one is bisected by the other.
31. A _____ is also a quadrilateral with one pair of parallel sides.

28. Slope AB = 1/5   slope BC = -5
    slope CD = 1   slope DA = -3/4
AB = 1.7; BC = 1.7; CD = 4; DA = 4
30. A _____ is also a rectangle.
32. A _____ is also a parallelogram with no right angles.

Chapter 11
Use the diagram to match each notation with the term that provides the best description.
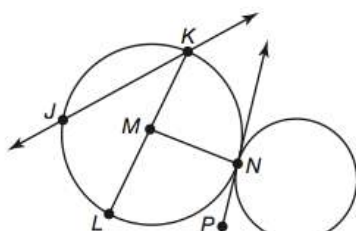
_____ 1. Point M
_____ 2. Point N
_____ 3. $\vec{JK}$
_____ 4. $\overline{MN}$
_____ 5. $\overline{LK}$
_____ 6. $\vec{PN}$

_____ 7. $\overparen{KN}$
_____ 8. $\overparen{KLN}$
_____ 9. $\overparen{LJK}$
_____ 10. ∠NML
_____ 11. ∠JKL

A. point of tangency
B. diameter
C. Secant
D. radius
E. center of the circle
F. inscribed angle

G. minor arc
H. major arc
I. semicircle
J. tangent
K. central angle

4

_____12. True or False: Concentric circles have congruent radii.
_____13. True or False: An inscribed angle has a vertex on the circle.
_____ 14. True or False: A circle is named by its center.

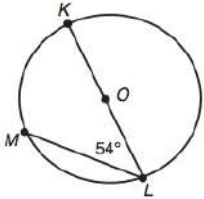Problems 1-5, find the indicated measure. SHOW YOUR WORK.

15. $m\widehat{KM}$

16. $m\angle KWS$
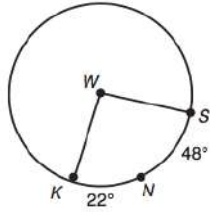
17. In circle C, $m\widehat{XZ} = 86°$. What is $m\widehat{WY}$?
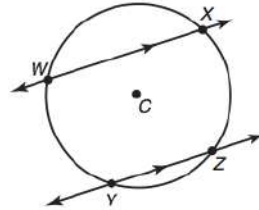
18. $m\angle SRT$ $m\widehat{su} = 24°; m\widehat{st} = 103°$
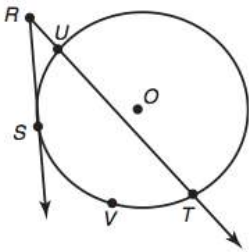
19. The measure of $\angle JOK$ is 168°. What is the measure of $\angle JIK$?
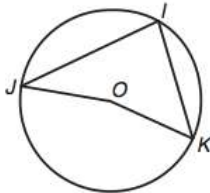
20.
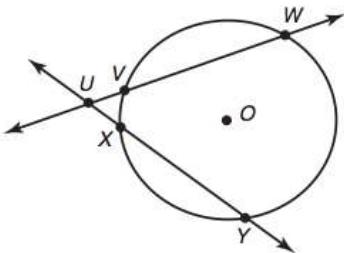
UV=3, VW=5
XY=4

Find UX

21.
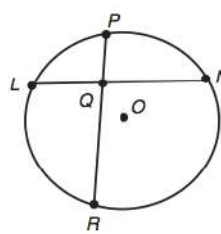
PQ = 4; QR = 9
LQ =3

Find LN

22. If $\overline{EF}$ and $\overline{GF}$ are tangent segments, what is the measure of $\angle EGF$?
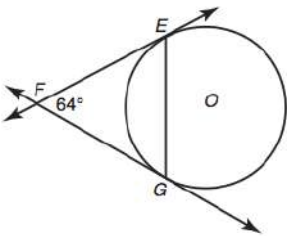
23. If $\overline{OD}$ is a radius, what is the measure of $\angle ODC$?

Chapter 12
Given the construction complete each statement.
1. $m\angle ADC =$ _____

2. $m\angle ADC + m\angle AEC =$ _____

3. $m\angle DCF = m\angle$_____

4. $\overline{AC}$ is a _____ in circle B.

5. True or False: $m\angle DAC = m\angle ACE$.

6. If a circle is _____ in a quadrilateral, then the quadrilateral is _____ about the circle.
(circumscribed, inscribed)

7. Find the missing angles.

m∠W= _____
m∠X= _____
m∠Y= _____
m∠Z= _____

8. If Triangle ABC is a right triangle then what can you conclude about $\overline{AC}$?

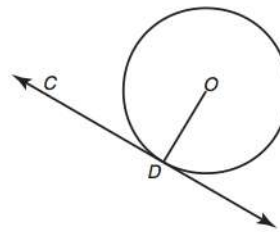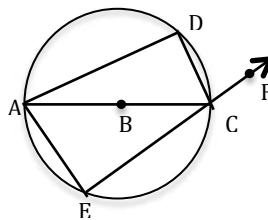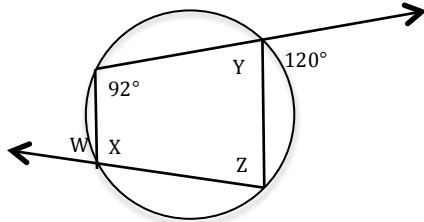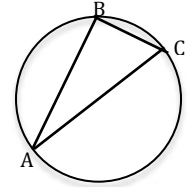| 9. What is the formula for calculating arc Length?	10. Find the missing measurement.
	    m° = 18°
	    r = 10 inches
	    L = _____

11. Find the missing measurement.
    m° = 20°
    L= 2π feet
    r = _____
	12. Find the missing measurement.
	    L = 4π cm
	    r = 9cm
	    m° = _____

13. True or False: The measure of the arc of a circle is the same as the arc length.	14. True or False: If the measures of 2 arc in two congruent circles are congruent then their arc lengths will also be congruent.
Convert between radians and degrees. 15. 90° 16. $\frac{\pi}{3}$	17. What is the formula to find the Area of a sector?
Find the Area of each sector 18. Central angle = 45°; radius = 12 mm 19. Central angle = 60°; radius = 15 inches.	20. Find the area of a segment in a circle with central angle 90° and radius 8cm.

Chapter 14
Consider the 7 days of the week. Suppose the name of each day is written on a separate piece of folded paper and placed in a bag. You reach into the bag and choose one piece of paper.

1. *Complete the probability model.*

Outcome	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Probability							

2. *Determine if the table is a uniform probability model or a non-uniform probability model. Explain why.*
_____

Using the data in the table, find the probability for each of the following.

3. P(Choosing Saturday) =_____

4. P(day ending in y) = _____

5. P(day with no a) = _____

6. P(not choosing Saturday) = _____

7. P(day that begins with a T) = _____

8. P(day with a "u" in it) = _____

Create a tree diagram and an organized list for the following. How many possible outcomes are there?

9. You pick a marble from a bag with 1 blue, 1 red and 1 green marble, then replace the marble and pick again.

10. You flip a coin 3 times.

Identify each as dependent or independent and then disjoint or intersecting.

11. Three friends are racing to the finish line. One will take first followed by second and third.

12. Cheryl wants to have a fruit and a veggie with her lunch. She can choose from and orange, apple, banana, carrots, or broccoli.

13. The grocery store sells a variety of noodles. The possible sizes of the noodles are small, medium, wide, and extra-wide. The noodles are sold in 1 pound, 2 pound, or 3 pound bags. The noodles are also classified as no yolk, egg, and wheat. How many different combinations can you make with these options?

14. I have an Algebra 2 class with 35 students of which 15 are boys. If I choose a boy and then a girl to run and errand then how many combinations of students could I choose?

15. If I arrange the letters MATH in all the ways possible, then how many arrangements will I have?

16. You create a 4 digit password using the numbers from 0 to 9 and the special keys #@$* (4 of them). How many different passwords can you create?

You create a smoothie with one ingredient from each column. Find each probability.

Strawberries	Yogurt
Raspberries	Soy milk and ice
Bananas	Almond milk and ice
Mango	Ice cream
Pineapple	

17. P(~strawberry *and* yogurt)

18. P(banana *and* yogurt)

19. P(mango *and* ~ice cream)

20. P(~Pineapple *and* ~ ice cream)

Find each probability.

21. Two marbles are chosen from a bag (without replacement). The bag contains 2 purple marbles, 1 white marble, and 3 green marbles.

a. P(Purple first *and* White second)   b. P(Green first)   c. P(Purple first *and* second)

22. You roll two six sided number cubes.

a. P(1 *and* 6)   b. P(1 *or* 6)   c. P(6 *and* ~1)

23. Draw a tree diagram on the back of this quiz and create a list for flipping a coin 2 times. Find the P(H first *or* T second) if you flip the coin two times.

There are 4 white, 6 blue and 2 purple shirts. You reach in and pick one, <u>replace it</u> and then pick another. Find the probability for each.

24. P(W *or* B)   25. P(W *and* B)

26. P(B *and* B *and* B)

You pick a day of the week from a bag. Find each probability.

27. P(Tues)   30. P(~Saturday)

28. P(Tues or Fri)   31. P(Mon and Tues)

29. P(Weekday)   32. P(February)

There are 4 white, 6 blue and 2 purple shirts. You reach in and pick one, <u>without replacing</u> the first shirt you pick another. Find the probability of each.

33. P(B *or* W)   34. P(B *and* B)

Independent or dependent?

_____35. Roll two die.

_____36. Flip a coin and pick a marble.

_____37. Pick two boys from the same class.

_____38. Choose a shirt and a tie.

_____39. Listening to two songs from the same list without repetition.

Geometry Semester 2 Review Answers

Chapter 8	*Chapter 9*	*Chapter 10*	*Chapter 11*	*Chapter 12*
1. HL	1. $\sqrt{7}$	1. L//I; N//E//S	1. E 2. A	1. 90°
2. LA	2. $\frac{\sqrt{3}}{3}$	2. T	3. C 4. D	2. 180°
3. LA	3. $\frac{\sqrt{6}}{2}$	3. T	5. B 6. J	3. DAE
4. Proof	4. x=5	4. F	7. G 8. H	4. diameter
5. Corresponding parts of congruent triangles are congruent.	5. x=7$\sqrt{3}$; y=7	5. T	9. I 10. K	5. False
6. True	6. x=5	6. F	11. F	6. Inscribed; circumscribed
7. MO≅BO; ∠M≅∠B	7. Tan: b/c	7. F	12. False	7. 60°; 120°; 60°; 88°
	8. Sin: b/a	8. 2 pair opp. angles must be ≅	13. True	8. Diameter
	9. Cos: c/a	9. No rt angles, diagonals not ≅	14. True	9. Formula
	10. c	10. Compass and straight edge	15. 108°	10. πinches
	11. 0.9004	11. 2700°	16. 70°	11. 19ft
	12. 1.5399	12. 135°	17. 86°	12. 80°
	13. 36.9°	13. Square	18. 63.5°	13. False
	14. x=37.3	14. Caves in on itself	19. 84°	14. True
	15. x=67.4°	15. Dodecagon	20. x=5	15. $\frac{\pi}{2}$
	16. B,A,A,B	16. x=44	21. 15	16. 60°
	17. A,B,C,D	17. 51.4°	22. 58°	17. Formula
	18. x=21; y=46.4°; z=43.6°	18. 360°	23. 90°	18. 18πmm²
	19. x=1.98; y=1.4; z=45°	19. 4 sides		19. $\frac{75}{2}\pi$
	20. 13.5ft, 95ft	20. 65°		20. A=(16π-32)cm²
	21. d,e,f	21. 31 sides		
	22. True	22. x=22		
	23. B	23. kite		
	24. A=665.1mm²	24. rectangle; square		
	25. x=18ft	25. True		
	26. x=3	26. True		
		27. Trapezoid		
		28. Quadrilateral		
		29. Kite		
		30. square		
		31. trapezoid		
		32. rhombus		

Chapter 12

1. 1/7 in whole table
2. Uniform probability because all probabilities are the same.
3. 1/7
4. 1
5. 0
6. 6/7
7. 2/7
8. 4/7
9. 9 outcomes
10. 8 outcomes
11. Dependent; intersecting
12. Independent; disjoint
13. 36 outcomes
14. 300 outcomes
15. 24 outcomes
16. 38,416 passwords
17. 1/5
18. 1/20
19. 3/20
20. 3/5
21a. 1/15; b. ½; c. 1/15
22a. 1/36; b. 11/36; c. 5/36
23. ¾
24. 2/3
25. 1/6
26. 1/8
27. 1/7
28. 2/7
29. 5/7
30. 6/7
31. 0
32. 0
33. 47/66
34. 5/22
35. I
36. I
37. D
38. I
39. D

Note: Your notecard must contain all information (formulas, vocabulary etc.) as these will not appear on the final exam.

Notecards are DUE: June 8, 2015 – NO EXCEPTIONS!!!!