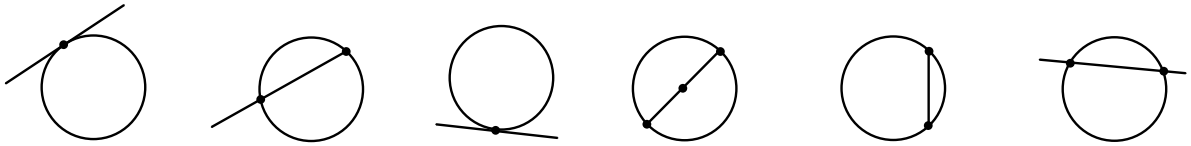
Name: _____

Final Exam Review – End of Unit 8

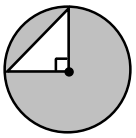
Unit 8: Circles

1. Identify each segment as a tangent, secant, or a chord.

A. B. C. D. E. F.



2. A right triangle with sides the length of the radius is within a circle. If the radius of the circle is 8 centimeters, what is the area of the shaded region?



Unit 7: Quadrilaterals

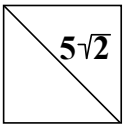
3. Which parts of a rectangle are always congruent?
   a. All sides
   b. Opposite sides
   c. Consecutive sides
   d. Diagonals

4. Which parts of a rectangle are always parallel?
   a. All sides
   b. Opposite sides
   c. Consecutive sides
   d. Diagonals

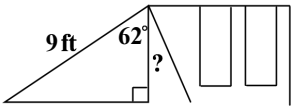
5. Which parts of a rectangle are always perpendicular?
   a. All sides
   b. Opposite sides
   c. Consecutive sides
   d. Diagonals

Unit 6: Right Triangle Trigonometry

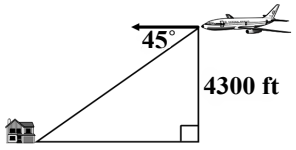
6. The figure shown is a square. What is the area of the square?



7. In the diagram shown, a 9-foot slide is attached to a swing set. The slide makes a 62° angle with the swing set. Which answer most closely represents the height of the slide?

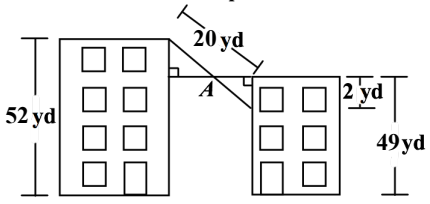


8. Joanna is flying an airplane at an altitude of 4300 ft. She sees her house on the ground at a 45° angle of depression. What is Joanna's horizontal distance from her house at this point?

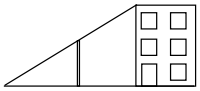


Unit 5: Similar Triangles

9. Two kids decided to string a rope from the roof of a 52 yard tall building to a window on the side of a 49 yard tall building so that they could send a bucket full of toys into the window. On their first try, the bucket got stuck on a clothesline at point *A*. How far did the bucket travel down the rope?

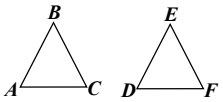


10. A 63-meter-long support wire for a light pole runs from the top corner of a 28-meter-tall building to a point on the ground, forming a straight line. The length of the wire from the top of the building to the top of the light pole is 36 meters. How tall is the light pole?

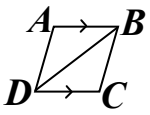


Name: _____

11. In the figure shown, △ABC and △DEF are isosceles triangles with a vertex angle at B & E, respectively. $\overline{AC} \cong \overline{DF}$ and $\angle A \cong \angle C$. Which theorem could be used to prove △ABC ≅△DEF?



12. Which is NOT a valid conclusion that you can draw from this picture?



a. ∠ABD ≅ $\angle CDB$
b. △ABD ≅△ CDB
c. Slope of $\overline{AB}$ = slope of $\overline{DC}$
d. $\overline{BD} \cong \overline{DB}$

Geometry:

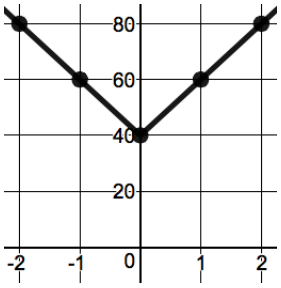
13. What is the name of the reason that states "If point M is on segment LN then $LM + MN = LN$."
    a. Congruent Supplement Theorem
    b. Triangle Sum Theorem
    c. Segment Addition Postulate
    d. Definition of a Midpoint

14. Which of the following statements is NOT true about isosceles triangles?
    a. At least two angles must be congruent.
    b. The altitude will always bisect the base.
    c. The altitude will create two congruent triangles.
    d. An isosceles triangle cannot have 3 congruent sides.

15. Which of the following is NOT true?
    a. Two planes can intersect in exactly one point.
    b. Two planes can intersect in an infinite number of points.
    c. A line and a plane can have an infinite number of intersection points.
    d. Parallel planes will never intersect.

Inverses and Other Functions:

16. A regional train approaches a certain train station before reversing direction each day. The graph models the train traveling at a constant speed. Which equation best represents the graph?

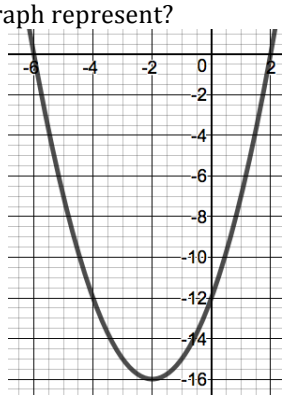


    a. $f(x) = |20x| + 40$
    b. $f(x) = |20x + 40|$
    c. $f(x) = |20x|$
    d. $f(x) = |40x| + 40$

17. Given the function $f(x) = 4x - 28$, write the inverse function.

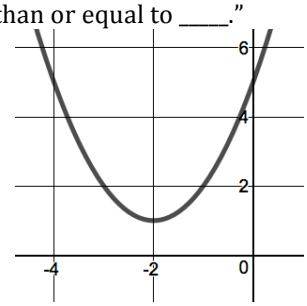
Quadratics:

18. Which polynomial does the graph represent?

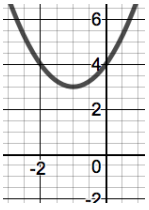


    a. $y = (x - 2)(x + 6)$
    b. $y = (x + 2)(x - 6)$
    c. $y = (x - 2)(x - 6)$
    d. $y = (x + 2)(x + 6)$

19. What is the range of the function represented by the graph? Write your answer in the following format: "All real numbers ____ than or equal to _____."



20. How is this graph different from a graph of the function $f(x) = x^2$ (list all transformations)?



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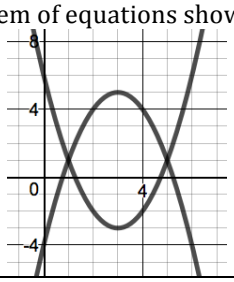
21. What are the roots of the quadratic equation?
$y = 4x^2 - 5x - 6$
a. $x = 2$ and $x = -0.75$
b. $x = -2$ and $x = 0.75$
c. $x = 2$ and $x = -3$
d. $x = -2$ and $x = 3$

22. Write a function in vertex form that represents a parabola that is translated 3 units to the left and 7 units up from the function $f(x) = x^2$?

23. What are the solution(s) to the system of equations shown?



24. A small rocket on a lunar outpost around Jupiter was launched from a 24-meter platform. The height of the rocket is modeled by the function $h(t) = -2t^2 + 2t + 24$, where t is time in seconds and $h(t)$ is the height of the rocket in meters.
a. What will be the value of $h(t)$ when the rocket hits the ground?
b. Find the time when the rocket hits the ground, clearly showing how you used the equation.

Polynomials:

25. Simplify the expression.
$(8x^2 - 11x) + (5x^3 - 3x^2 + 12)$

26. Simplify the expression.
$(7x - 10)^2$

27. What is the product of the polynomials?
$x + 10$ and $5x^2 + x - 8$

28. Under which operations are the set of natural numbers NOT closed?
a. Addition
b. Subtraction
c. Multiplication
d. Division

29. In which sets does the number -7 NOT belong?
a. Rational numbers
b. Integers
c. Whole Numbers
d. Natural Numbers
e. Irrational Numbers
f. Real Numbers
g. Imaginary Numbers

Final Exam Review – End of Unit 8
Answers:

1. a. Tangent b. Secant c. Tangent d. Chord e. Chord f. Secant			2. $64\pi - 32$
3. B & D	4. B	5. C	6. 25
7. 4.2 ft	8. 4300 ft	9. 12 yd	10. 12 m
11. ASA	12. B	13. C	14. D
15. A	16. A	17. $f^{-1}(x) = \frac{1}{4}x + 7$	18. A
19. All real numbers greater than or equal to 1.	20. Translated left 1 unit and up 3 units		21. A
22. $f(x) = (x + 3)^2 + 7$	23. $(1, 1)$ & $(5, 1)$	24. a. $h(t) = 0$ b. 4 sec.	25. $5x^3 + 5x^2 - 11x + 12$
26. $49x^2 - 140x + 100$	27. $5x^3 + 51x^2 + 2x - 80$	28. B & D	29. C, D, E & G