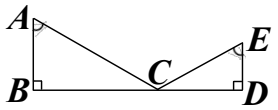
Name: _____

Integrated 2 Final Exam Review – End of Unit 5

Unit 5 Questions

1. Which are NOT valid conclusions that you can draw from this picture?



a. $\triangle ABC \cong \triangle EDC$

b. $\triangle ABC \sim \triangle EDC$

c. Slope of $\overline{AC}$ = slope of $\overline{CE}$

d. $\overline{AB} \cong \overline{ED}$

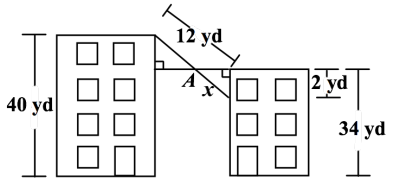
e. $\overline{AC} \cong \overline{EC}$

f. $\frac{BC}{AC} = \frac{DC}{ED}$

g. $\frac{BC}{AC} = \frac{DC}{EC}$

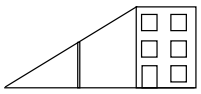
2. Two kids decided to string a rope from the roof of a 40 yard tall building to a window on the side of a 34 yard tall building so that they could send a bucket full of toys into the window. On their first try, the bucket got stuck on a clothesline at point A. How far was the stuck bucket from the window?

a. 9 yd
b. 6 yd
c. 4 yd
d. 3 yd



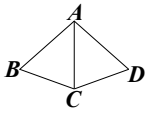
3. A 50-foot-long support wire for a 16-foot tall post runs from the top corner of a building to a point on the ground, forming a straight line. The length of the wire from the top of the building to the top of the light post is 30 feet. How tall is the building?

a. 3.8 ft
b. 26.7 ft
c. 30.0 ft
d. 40.0 ft



4. In the figure shown, $\triangle ABC$ and $\triangle ADC$ are isosceles triangles with vertex angles at A, and $\overline{BC} \cong \overline{DC}$. Which theorem could be used to prove $\triangle ABC \cong \triangle ADC$?

a. HL
b. AAS
c. SAS
d. SSS



Review Questions

5. Match the statement with its reason.

Match	Reason
	Congruent Supplement Theorem
	Triangle Sum Theorem
	Angle Addition Postulate
	Definition of a Midpoint
	Definition of Congruence
	Segment Addition Postulate
	Addition Property of Equality
	Congruent Complement Theorem

a. If ray BC goes through angle ABD, then $m\angle ABC + m\angle CBD = m\angle ABD$.

b. If point R is on segment QS, then $QR + RS = QS$

c. If two angles are supplementary to the same angle, then the two angles are congruent to each other.

d. If two angles are complementary to the same angle, then the two angles are congruent to each other.

e. If D is the midpoint of segment CE, then $2(CD) = CE$.

f. If $\overline{RS} \cong \overline{ST}$, then $RS = ST$.

g. If $2x - 3 = 11$, then $2x = 14$.

h. On $\triangle ABC$, $m\angle A + m\angle B + m\angle C = 180°$.

6. Given the function $f(x) = 6x + 24$, write the inverse function.

7. Which expression is equivalent to the expression?
$(4x^3 + 7x^2) + (-2x^3 - 5x + 6)$

a. $2x^3 + 2x^2 + 6$
b. $4x^3 + 2x^2 + 6$
c. $2x^3 + 7x^2 - 5x + 6$
d. $4x^3 + 7x^2 - 5x + 6$

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8. Which is equivalent to the expression?

$(3x-7)^2$

a. $9x^2+49$
b. $9x^2-49$
c. $9x^2-42x+49$
d. $9x^2+42x+49$

9. What is the product of the polynomials?

$x-5$ and $2x^2+3x-4$

a. $2x^3-7x^2-19x+20$
b. $2x^3-13x^2-19x-20$
c. $2x^3+13x^2+19x-20$
d. $2x^3-7x-19x+20$

10. Under which operations are the set of integers NOT closed?

a. Addition
b. Subtraction
c. Multiplication
d. Division

11. In which sets does the number 3π NOT belong?

a. Rational numbers
b. Integers
c. Whole Numbers
d. Natural Numbers
e. Irrational Numbers
f. Real Numbers
g. Imaginary Numbers

12. Which function represents a parabola that is translated 7 units to the left and 4 down from the function $f(x)=x^2$?

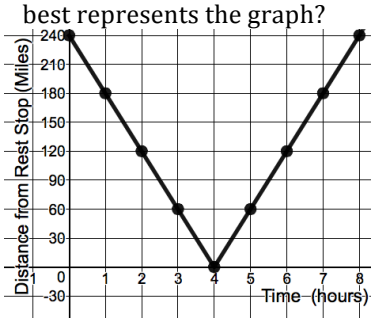
a. $f(x)=5(x+7)^2-4$
b. $f(x)=11(x-7)^2+4$
c. $f(x)=9(x+7)(x-4)$
d. $f(x)=-4(x-7)(x+4)$

13. What are the roots of the quadratic equation?

$y=2x^2+11x+12$

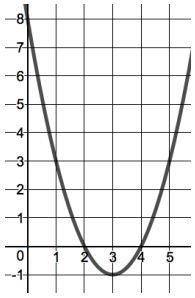
a. $x=3$ and $x=8$
b. $x=-3$ and $x=-8$
c. $x=-1.5$ and $x=-4$
d. $x=1.5$ and $x=4$

14. A long-distance bus passes by a certain rest stop at the halfway point of its trip each day. The graph models the bus at a constant speed. Which equation best represents the graph?



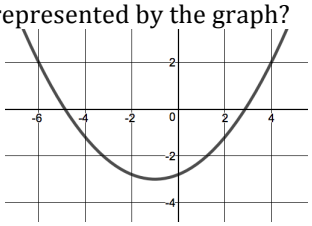
a. $f(x)=|60x-240|$
b. $f(x)=|60x+240|$
c. $f(x)=|x|+240$
d. $f(x)=|60x+4|$

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



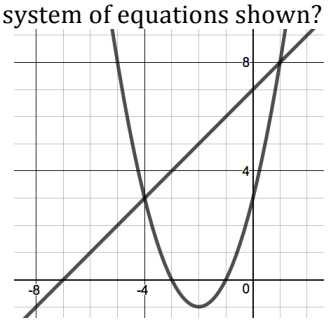
a. It is translated 3 units to the left and 1 unit down.
b. It is translated 3 units to the right and 1 unit down.
c. It is translated 1 unit to the right and 3 units down.
d. It is translated 1 unit to the left and 3 units down.

16. What is the range of the function represented by the graph?



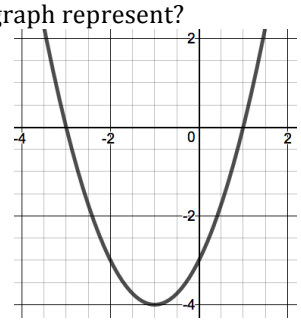
a. All real numbers greater than or equal to -5.
b. All real numbers less than or equal to -1.
c. All real numbers greater than or equal to -3.
d. All real numbers less than or equal to 3.

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



a. $(-3,0)$ and $(-1,0)$
b. $(-7,0)$
c. $(0,7)$
d. $(-4,3)$and $(1,8)$

18. Which polynomial does the graph represent?



a. $y=(x+1)(x+3)$
b. $y=(x+1)(x-3)$
c. $y=(x-1)(x+3)$
d. $y=(x-1)(x-3)$

19. A small rocket on a lunar outpost around Jupiter was launched from a 25-meter platform. The height of the rocket is modeled by the function $h(t)=-5t^2+20t+25$, 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.

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Answers:

1. A, C, D, E, F
2. D
3. D
4. D
5. In order, top to bottom: C, H, A, E, F, B, G, D
6. $f^{-1}(x) = \frac{x}{6} - 4$
7. C
8. A
9. D
10. A, B, C, D, G
11. A
12. C
13. A
14. B
15. C
16. D
17. C
18. a. 0 meters
    b. 5 seconds