Name Key

Period _____

Secondary Math II: Final Review 2016 Review

1. Subtract: $(9t^2 + 4t - 6) - (t^2 - 2t + 4)$
   a. $8t^2 + 6t - 10$
   b. $8t^2 + 2t - 2$
   c. $9t^2 + 6t - 2$
   d. $9t^2 + 6t - 10$
   e. None of the above

2. Multiply: $(x + 3)(x - 5)$
   a. $x^2 - 2x - 15$
   b. $x^2 - 2x + 15$
   c. $x^2 - 8x - 15$
   d. $2x^2 - 2x - 8$
   e. None of the above

3. Simplify: $\sqrt{90}$
   a. 45
   b. $3\sqrt{10}$
   c. $9\sqrt{10}$
   d. 9.5
   e. None of the above

4. Simplify: $-5i(7 + 3i)$
   a. $-35i + 15$
   b. $15i - 35$
   c. $-50i$
   d. $-12i$
   e. None of the above

5. Simplify: $(5x)^2$
   a. $5x^2$
   b. $10x^2$
   c. $25x^3$
   d. $25x^2$
   e. None of the above

6. Simplify: m^{15}/m^9
   a. m^5
   b. m^{24}
   c. m^6
   d. m^{-3}
   e. None of the above

7. Simplify: $(4x^3)(-2x^{-1})$
   a. $8x^2$
   b. $-8x^4$
   c. $-8x^2$
   d. $8x$
   e. None of the above

8. Write in radical form: $x^{2/3}$
   a. $\frac{x^2}{3}$
   b. $3x^2$
   c. $\frac{x^1}{3}$
   d. π
   e. None of the above

9. Simplify: d^3d^5d
   a. d^9
   b. d^8
   c. d^{15}
   d. $8d$
   e. None of the above

10. Simplify: $(-27x^4y^{-3}z^{14})^0$
   a. 0
   b. -27
   c. $-27x^4y^{-3}z^{14}$
   d. 1
   e. None of the above

11. Choose an equation that fits the given information.
   Circle: Center (3, -2), Radius = 4
   a. $(x+3)^2 + (y+2)^2 = 16$
   b. $(x-3)^2 + (y+2)^2 = 16$
   c. $(x-3)^2 + (y-2)^2 = 8$
   d. $(x+3)^2 + (y-2)^2 = 16$

12. Choose an equation that fits the given information.
   Absolute Value: $a = -2$, **Vertex** $(-4, 2)$
   a. $y = 2|x-4| + 2$
   b. $y = -2|x-4| - 2$
   c. $y = -2|x+4| + 2$
   d. $y = 2|x+4| + 2$

13. Find the slope of the line that passes through the following points: $(4, -2)$ and $(-2, 4)$

a. $-\frac{1}{3}$

b. 1

c. -3

d. -1

$\frac{-2-4}{4+-2} = -\frac{6}{6}$

14. Choose an equation that fits the given information.

Parabola: $a = 3$, Vertex $(0, 1)$

a. $y = 3x^2 + 1$

b. $y = (x-3)^2 + 1$

c. $y = 3x^2 - 1$

d. $y = (x+3)^2 + 1$

$y = a(x-h)^2 + k$

$y = 3(x-0)^2 + 1$

$y = 3x^2 + 1$

15. Solve the following system. $\begin{cases} 5x + 4y = -12 \\ x - 2y = -8 \end{cases}$

a. (3, 2)

b. (-3, -2)

c. (2, 4)

d. (-4, 2)

16. Solve for y: $xy - d = m$

a. $y = \frac{m+d}{x}$

b. $y = \frac{m-d}{x}$

c. $y = m + d - x$

d. $xy = m + d$

17. Which of the following is a factor of $x^2 + 4x - 12$?

a. $x - 2$

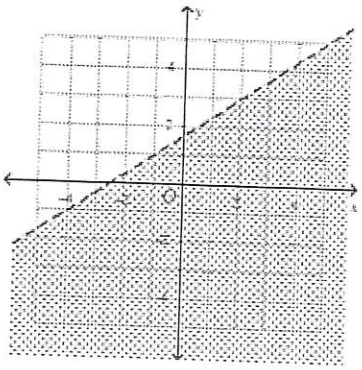
b. $x - 3$

c. $x - 4$

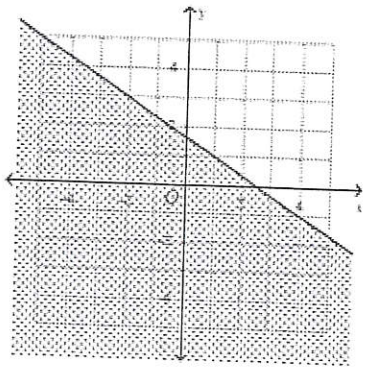
d. $x - 6$

e. None of the above

18. Which graph below represents the solution of the equation $4x + 6y \geq 10$?



c.



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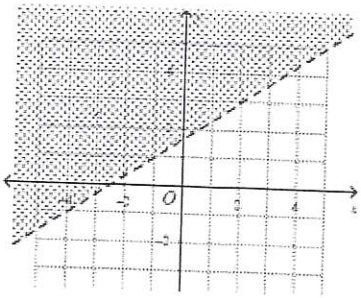

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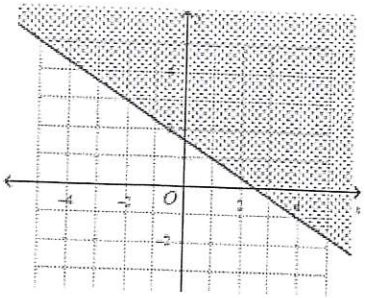


19. Jack bought 3 slices of cheese pizza and 4 slices of mushroom pizza for a total cost of \$12.50. Grace bought 3 slices of cheese pizza and 2 slices of mushroom pizza for a total cost of \$8.50. What is the cost of one slice of mushroom pizza?

a. \$1.50
b. \$2.00
c. \$3.00
d. \$3.50

20. What is an equation for the line that passes through the coordinates $(2, 0)$ and $(0, 3)$?

a. $y = -\frac{3}{2}x + 3$
b. $y = -\frac{3}{2}x - 3$
c. $y = -\frac{2}{3}x + 2$
d. $y = -\frac{2}{3}x - 2$

21. What are the solutions of $2x^2 + 5x - 7$?

a. $7\ and\ -\frac{1}{2}$
b. $\frac{7}{2}\ and - 1$
c. $-7\ and\ \frac{1}{2}$
d. $-\frac{7}{2}\ and\ 1$

22. What is the vertex of the graph of the function $y = x^2 - 6$?

a. $(0, -6)$
b. $(0, 6)$
c. $(-6, 0)$
d. $(6, 0)$
e. $(0, 0)$

23. What are the x-intercepts of the function $y = x^2 + 11x - 26$?

a. 2 and 13
b. -2 and -13
c. 2 and -13
d. -2 and 13

24. What are the solutions of the equation $x^2 = 28$?

a. $\pm 4\sqrt{7}$
b. $\pm 2\sqrt{7}$
c. $\pm 7\sqrt{2}$
d. $\pm 7\sqrt{4}$

25. Which equation represents the axis of symmetry of the function $y = -x^2 + 6x - 8$?

a. $x = -3$
b. $x = 3$
c. $x = -4$
d. $x = 4$
e. $x = 0$

26. The equation $y = (x - 5)^2 - 7$ is in which form?

a. Intercept form
b. Standard Form
c. Vertex Form
d. AOS Form

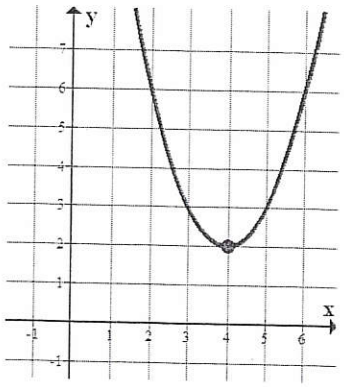
27. When the quadratic equation $y = (x - 4)(x + 9)$ is written in standard form, what is the value of the coefficient "*b*"?

a. 36
b. -36
c. 5
d. -5
e. None of the above

28. Which value of c makes the expression $x^2 + 18x + c$ a perfect square trinomial?

a. 9
b. 18
c. 36
d. 81

29. Which function models the graph to the right?



a. $y = (x + 4)^2 + 2$
b. $y = (x + 2)^2 + 4$
c. $y = (x - 4)^2 + 2$
d. $y = (x - 4)^2 - 2$

30. What are the solutions of the equation $x^2 - 6x = -15$?

a. $-3 \pm 2i\sqrt{6}$
b. $3 \pm i\sqrt{6}$
c. $3 \pm \sqrt{6}$
d. $-3 \pm 2\sqrt{6}$

31. What are the solutions of the equation $2x^2 + 4x - 7 = 0$?

a. $\frac{-2\pm3\sqrt{2}}{4}$

b. $\frac{-2\pm6\sqrt{2}}{2}$

c. $\frac{-4\pm6\sqrt{2}}{2}$

d. $\frac{-2\pm3\sqrt{2}}{2}$

32. What are the solutions of the equation $(x-5)^2 = 4$

a. 7 and 3

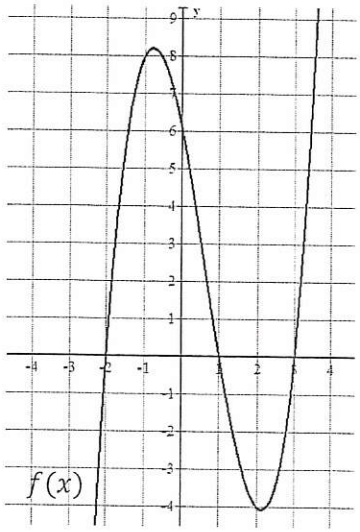
b. ±3

c. 1 and 5

d. 21 and 11

Use the graph of the function $f(x)$ to answer the following questions.

For question 33 and 34:



33. $f(2) = ?$

a. 1

b. -4

c. 0

d. 6

e. None of the above

34. Find x when $f(x) = 0$

a. 6, -4

b. 6

c. -2, 1, 3

d. 2

e. None of the above

35. If $g(x) = \frac{1}{3}x + 8$, what is $g^{-1}(x)$?

a. $y = \frac{-1}{3}x - 8$

b. $y = 3x - 24$

c. $y = 3x + \frac{1}{58}$

d. $y = x - 8$

e. None of the above

36. If $f(x) = 12x - 9$ and $g(x) = \frac{1}{3}x + 8$, find $(f+g)(6)$.

a. 64

b. 77

c. 73

d. 68

e. None of the above

37. If $p(x) = x - 2$ and $r(x) = 3x + 1$, find $(p \cdot r)(x)$.

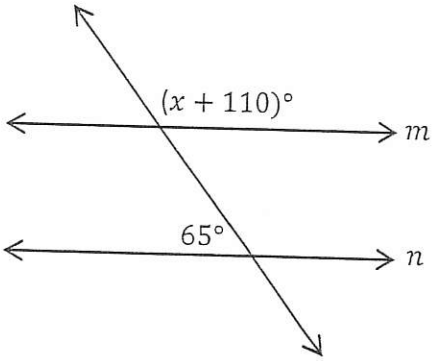
a. $3x^2 - 2$
b. $4x - 1$
c. $3x^2 - 5x - 2$
d. $4x^2 - 5x - 1$
e. None of the above

38. If $j(x) = 2x - 5$ and $k(x) = x^2 - 1$, what is the value of $j(k(3))$?

a. 5
b. 11
c. 0
d. 8
e. None of the above

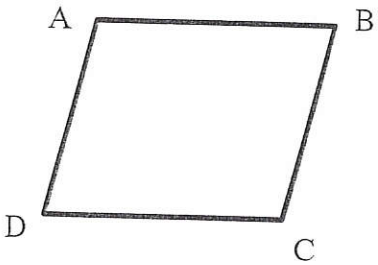
39. Line *m* and *n* are parallel. Solve for *x*.

a. 10
b. 65
c. 45
d. 5
e. None of the above



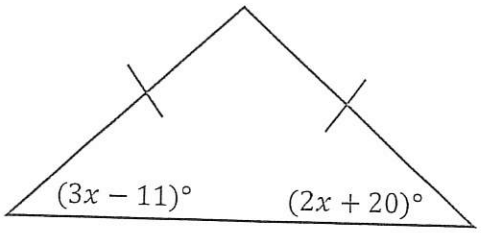
40. Given ▱ ABCD. If $\angle ACB = (7x - 23)°$ and $\angle CAD = (3x + 9)°$, solve for x.

a. 19.4
b. 8
c. 10.4
d. 12
e. None of the above



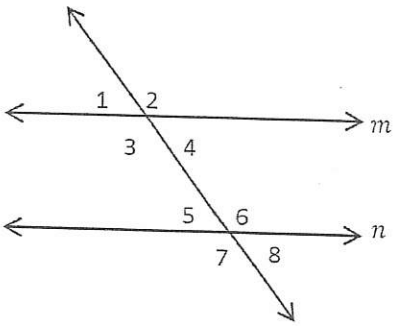
41. Solve for x.

a. 9
b. 16.2
c. 34.2
d. 31
e. None of the above



42. Line m and n are parallel. Which statement is false?

a. $\angle 1$ *and* $\angle 5$ *are corresponding angles*
b. $\angle 1$ *and* $\angle 8$ *are alternating exterior angles*
c. $\angle 4$ *and* $\angle 6$ *are consecutive interior angles*
d. $\angle 3$ *and* $\angle 5$ *are alternating interior angles*
e. None are false



43. A building casts a shadow 50 m long. At the same time, a pole 8 meters high casts a shadow 18 m long. What is the height of the building?

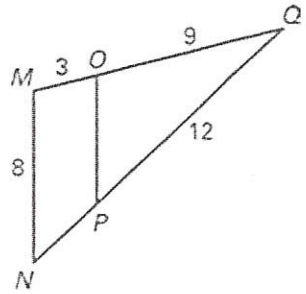
a. 2.9m
b. 24.3m
c. 112.5m
d. 22.2m

44. If the ratio of the measures of the angles in a triangle is 3:5:7, what are the measures of the angles in the triangle?

a. 45°, 75°, 105°
b. 30°, 50°, 70°
c. 36°, 60°, 84°
d. 39°, 65°, 91°

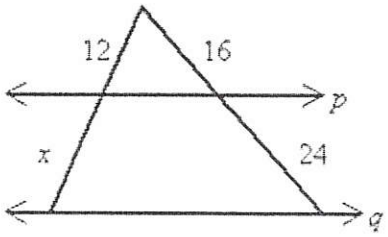
45. Given OP || MN, find *OP*.

a. 4
b. 5
c. 6
d. 7



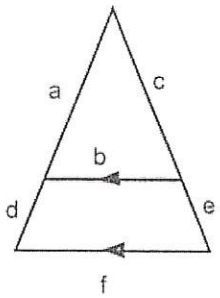
46. If $p \parallel q$, solve for x.

a. 16
b. 30
c. 18
d. 32
e. None of the above



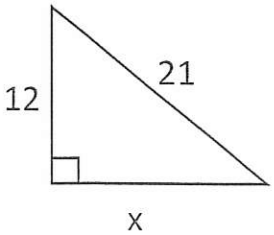
47. Given the following diagram, which of the following proportions is false?

a. $\frac{a}{d} = \frac{c}{e}$
b. $\frac{a}{c} = \frac{d}{e}$
c. $\frac{b}{f} = \frac{c}{e}$
d. $\frac{b}{f} = \frac{a}{a+d}$



48. Solve for *x*.

a. 585
b. 297
c. 24.2
d. 17.2

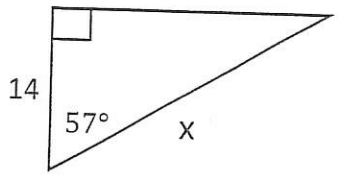


49. From the top of a lighthouse 210 ft high, the angle of depression to a boat is 27°. Find the distance from the boat to the foot of the lighthouse.

a. 107.0 ft
b. 462.6 ft
c. 412.1 ft
d. 235.7 ft

50. What is the value of X?

a. 7.6
b. 11.7
c. 16.7
d. 25.7



51. How would you find the length of an altitude of an equilateral triangle given the measure of one side?

a. Divide the side by 2 then multiply by $\sqrt{2}$
b. Divide the side by 2 then multiply by $\sqrt{3}$
c. Divide the side by $\sqrt{2}$ then multiply by 2
d. Divide the side by $\sqrt{3}$ then multiply by 2

52. How do you find the length of a diagonal of a square given the length of one side?

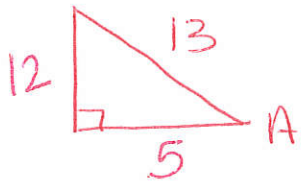
a. Multiply the side length by $\sqrt{2}$
b. Multiply the side length by $\sqrt{3}$
c. Multiply the side length by 2
d. Divide the side length by $\sqrt{2}$
e. None of the above

53. At a point on the ground 50 ft. from the foot of a tree, the angle of elevation to the top of the tree is 53°. Find the height of the tree.

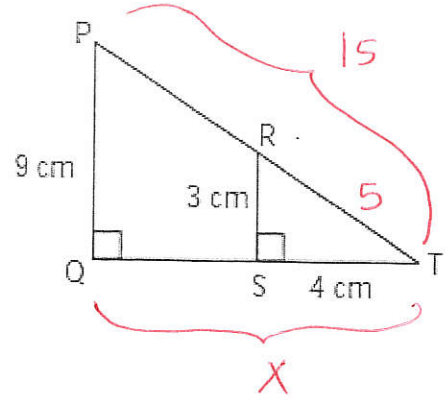
a. 39.9 ft
b. 63.1 ft
c. 37.7 ft
d. 66.4 ft

54. Cos $A = \frac{5}{13}$, find $Tan\ A$. $\frac{opp}{adj}$

a. $\frac{13}{5}$
b. $\frac{12}{5}$
c. $\frac{5}{12}$
d. $\frac{12}{13}$



1. Looking at the triangles in the figure on the right:
   a) Are the two triangles similar? yes
   b) What is the length of QT? 12
   c) If PT is 15 cm, what is the length of RT? 5



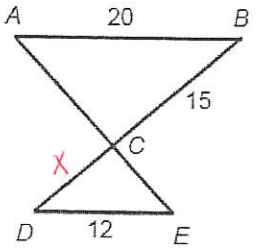
$\frac{3}{5} = \frac{9}{15}$ true/similar

$\frac{4}{x} = \frac{3}{9}$

$3x = 36$

$x = 12$ (QT)

7. In the diagram below, $\overline{AB}$ is parallel to $\overline{DE}$. $AB = 20$ inches, $DE = 12$ inches, and $BC = 15$ inches. What is the length of $\overline{DC}$?



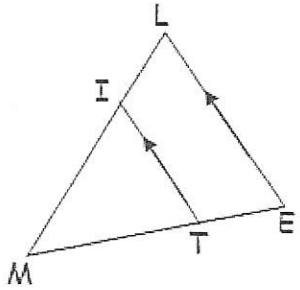
A. 25 in.
B. 9 in.
C. 7 in.
D. 90 in.

$\frac{x}{15} = \frac{12}{20}$

$20x = 180$

$x = 9$

Complete the proportions for the given diagram.



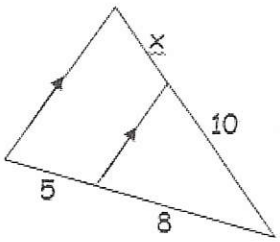
a. $\frac{MI}{ML} = \frac{MT}{ME}$

b. $\frac{MI}{ML} = \frac{TI}{EL}$

c. $\frac{IT}{LE} = \frac{MT}{ME}$

Write and solve proportions to solve for each variable.

1.

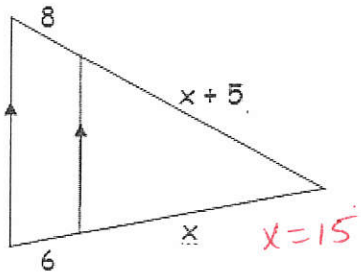


$\frac{x}{5} = \frac{10}{8}$

$8x = 50$

$x = 6.25$

2.



$x = 15$

$\frac{8}{6} = \frac{x+5}{x}$

$8x = 6x + 30$

$2x = 30$