Name Key

Period _____

Secondary Math II: Final Review 2017 B

1. Subtract: $(9t^2 - 5t - 6) + (t^2 + 2t + 10)$ $8t^2 - 3t - 16$

2. Multiply: $(x - 8)(x - 9)$ $x^2 - 9x - 8x + 72 = x^2 - 17x + 72$

3. Simplify: $\sqrt{600}$ $10\sqrt{6}$

   $100 \cdot 6$

4. Simplify: $-7i(8 + 3i)$ $-56i - 21i^2 = 21 - 56i$

5. Simplify: $(4x)^2$ $16x^2$

6. Simplify: $\frac{m^9}{m^2}$ m^7

7. Simplify: $(3x^4)(-5x^{-2})$ $-15x^2$

8. Write in radical form: $x^{\frac{3}{4}}$ $(\sqrt[4]{x})^3$ or $\sqrt[4]{x^3}$

9. Simplify: $d^4 d^7 d^1$ d^{12}

10. Simplify: $5(-3x^3z^{-2})^0$ $= 5$

    1

11. Choose an equation that fits the given information. $(x-4)^2 + (y+2)^2 = 81$

    Circle: Center (4, -2), Radius = 9

12. Choose an equation that fits the given information.

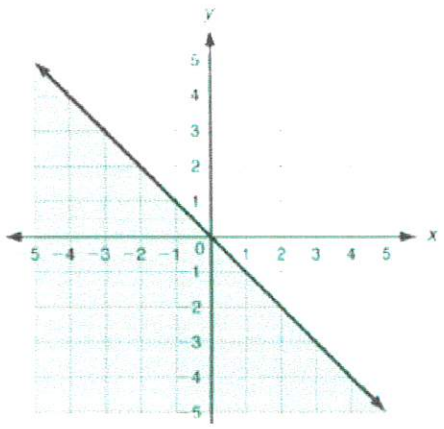
    Absolute Value: $a = -3$, Vertex $(-3, -5)$ $y = -3|x+3| - 5$

13. Choose an equation that fits the given information. **Line: m = -1/2, y-int = 4**

    $y = -\frac{1}{2}x + 4$

14. The solution of which linear inequality is graphed to the right?

    a. $y < -x$
    b. $y > -x$
    c. $y \leq -x$
    d. $y \geq -x$
    e. None of the above



15. Solve the following system. Give the x value of one of the solution(s) $\begin{cases} y = x^2 + 2x + 7 \\ 6x + 3 = y \end{cases}$

$6x+3 = x^2+2x+7$

$0 = x^2-4x+4$ $\quad (x-2)(x-2)$ $\quad x=2$ $\quad (2, 15)$

16. Choose an equation that fits the given information.

Parabola: $a = 3$, Vertex $(0, -2)$

$y = 3x^2-2$

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

$5x+4y=-12$

$2x-4y=-16$

$7x = -28$

$x=-4$

$-4-2y=-8$

$-2y=-4$

$y=2$

$(-4, 2)$

18. Solve for y: $xy - 2d = 4m$

$xy = 2d+4m$

$y = \frac{2d+4m}{x}$

19. Factor of $x^2 + 4x - 12$?

$(x+6)(x-2)$

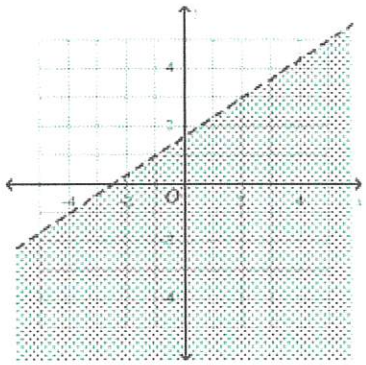
20. Which graph below represents the solution of the equation $4x + 6y \geq 10$?

$6y \geq -4x+10$

$y \geq -\frac{4}{6}x + \frac{10}{6}$

$y \geq -\frac{2}{3}x + \frac{5}{3}$

a.



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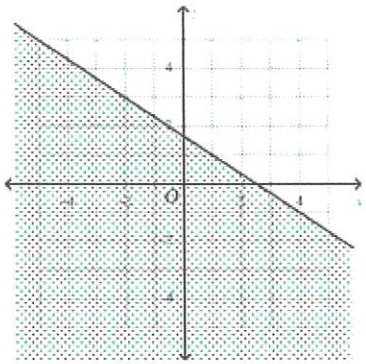

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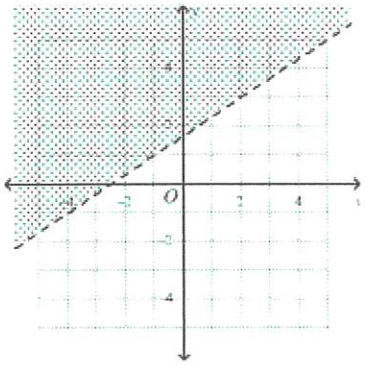

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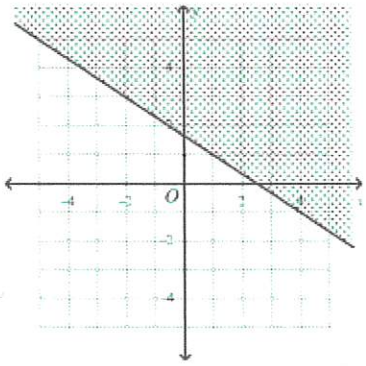


21. What are the solutions of $3x^2 + 20x - 7$.

$x = \frac{-20 \pm \sqrt{400-4(3)(-7)}}{2(3)} = \frac{-20 \pm 22}{6} = \frac{1}{3}$ or -7

22. What is the vertex of the graph of the function $y = x^2 + 4$?

$(0, 4)$

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

$y = (x+13)(x-2)$ (-13,0) (2,0)

24. What are the solutions of the equation $x^2 = 72$?

$x = \pm\sqrt{72}$

$\pm 6\sqrt{2}$

25. Find the axis of symmetry of the function $y = -x^2 + 8x - 12$?

$x = \frac{-8}{2(-1)} = 4$

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 $y = (x-3)(x+6)$ is written in standard form, what is the value of the coefficient "*b*"?

$x^2 - 3x + 6x - 18$

$x^2 + 3x - 18$

$b = 3$

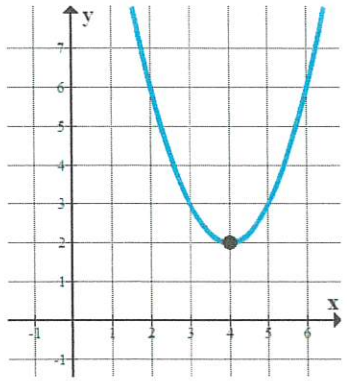
28. Which value of c makes the expression $x^2 + 12x + c$ a perfect square trinomial?

$c = 36$

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. $y = (x-4)^2 - 2$

V: (4,2)



30. What are the solutions of the equation $x^2 - 4x = -15$?

$x^2 - 4x + 15 = 0$

$x = \frac{4 \pm \sqrt{16 - 4(1)(15)}}{2(1)} = \frac{4 \pm \sqrt{-44}}{2} = \frac{4 \pm 2i\sqrt{11}}{2}$

$= 2 \pm i\sqrt{11}$

31. What are the solutions of the equation $3x^2 + 4x - 7 = 0$?

$(3x+7)(x-1) = 0$

$x = -7/3 \quad x = 1$

32. What are the solutions of the equation $(x-6)^2 = 4$

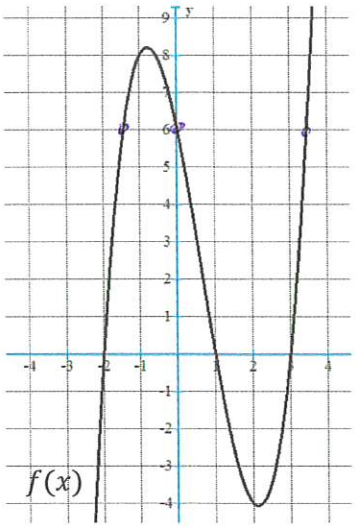
$x - 6 = \pm\sqrt{4}$

$x = 6 \pm 2$

$x = 8, 4$

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

For question 35 and 36:

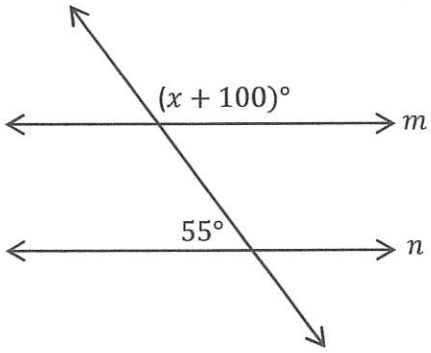


33. $f(-1) = ?$ 8

34. Find x when $f(x) = 6$

-1.5, 0, 3.5

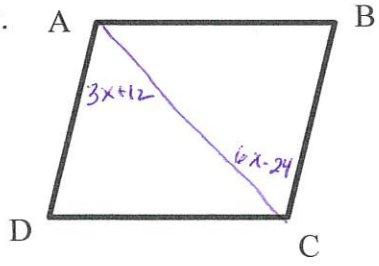
35. Line *m* and *n* are parallel. Solve for *x*.



$x + 100 + 55 = 180$

$x = 25$

36. Given ▱ ABCD. If $\angle ACB = (6x - 24)°$ and $\angle CAD = (3x + 12)°$, solve for x.

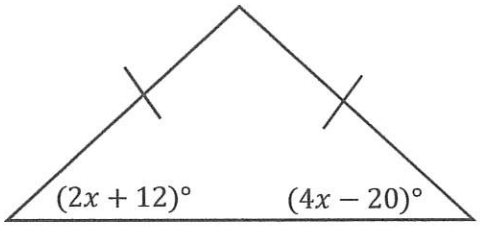


$3x + 12 = 6x - 24$

$36 = 3x$

$x = 12$

37. Solve for x.



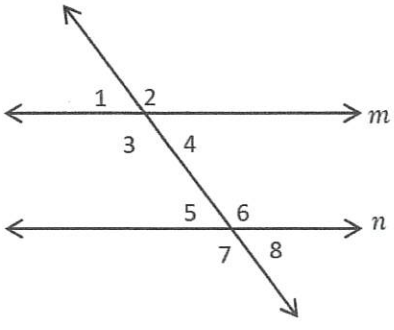
$2x + 12 = 4x - 20$

$32 = 2x$

$x = 16$

38. 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



39. A building casts a shadow 60 m long. At the same time, a pole 10 meters high casts a shadow 18 m long. What is the height of the building?

x | 60 10 | 18 $\frac{x}{60} = \frac{10}{18}$ $x = 33.3\text{ m}$

40. If the ratio of the measures of the angles in a triangle is 3:4:7, what are the measures of the angles in the triangle?

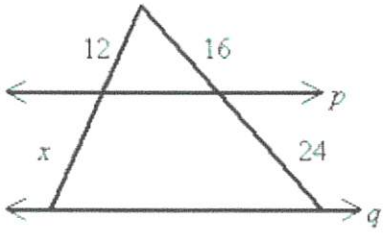
$3x + 4x + 7x = 180$

$14x = 180$

$x = \frac{90}{7}$

$38.55^\circ, 51.4^\circ, 89.95^\circ$

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



$\frac{12}{x} = \frac{16}{24}$

$x = 18$

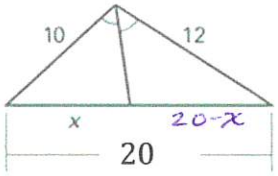
42. Find the value of x.

$\frac{10}{x} = \frac{12}{20-x}$

$12x = 200 - 10x$

$22x = 200$

$x = 9.09$



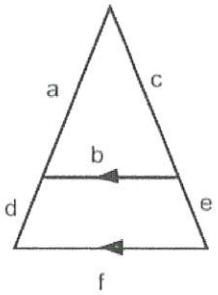
43. Given the following diagram, which of the following proportions is false?

a. $\frac{a}{d} = \frac{c}{e}$

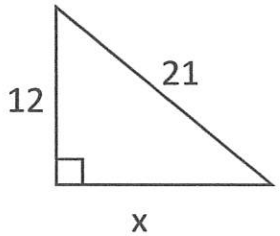
b. $\frac{a}{c} = \frac{d}{e}$

c. $\frac{b}{f} = \frac{c}{e}$

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



44. Solve for *x*.

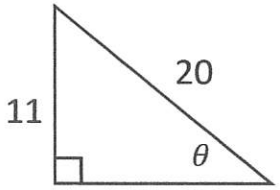


$x^2 + 12^2 = 21^2$

$x = \sqrt{297}$

$x = 3\sqrt{33} \approx 17.2$

45. Solve for θ. Round to the nearest degree.



$\sin\theta = \frac{11}{20}$

$\sin^{-1}\left(\frac{11}{20}\right) = \theta$

$\theta = 33.4^\circ$

46. From the top of a lighthouse 140 ft high, the angle of depression to a boat is 17°. Find the distance from the boat to the foot of the lighthouse.

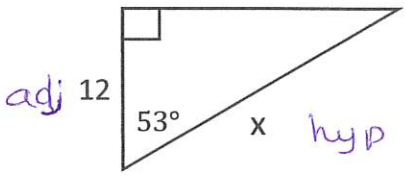
$\tan 17° = \frac{140}{x}$

457.9 ft

$x = \frac{140}{\tan 17°}$

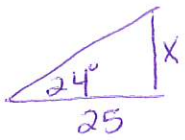
47. What is the value of X?

$\cos 53° = \frac{12}{x}$



$x = \frac{12}{\cos 53°} = 19.93$

48. At a point on the ground 25 ft. from the foot of a tree, the angle of elevation to the top of the tree is 24° . Find the height of the tree.

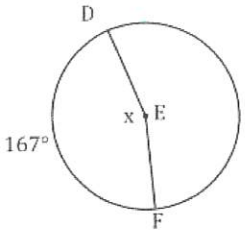


$\tan 24° = \frac{x}{25}$

$x = 11.13$ ft

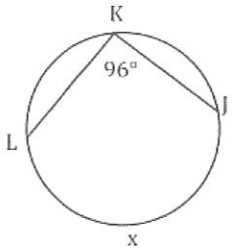
49. What is the value of X?

a. 334°
b. 13°
c. 167°
d. 83.5°



50. What is the value of X?

e. 96°
f. 192°
g. 48°
h. 84°



51. What is the value of X?

i. 41°
j. 82°
k. 20.5°
l. 139°