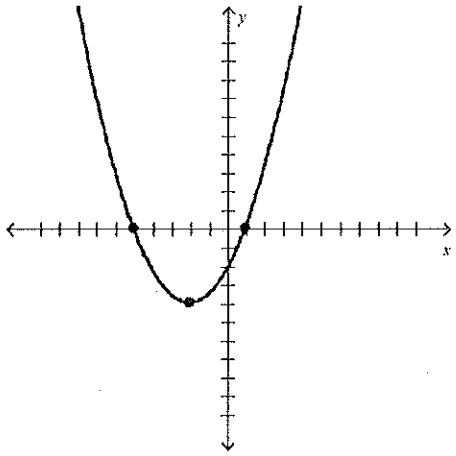
Name Key Date _____ Honors Algebra II

Another Practice Algebra II Test

1) The graph of a quadratic function in standard form $f(x) = ax^2 + bx + c$ is given on the grid.



a) Find the solutions to the equation $f(x) = 0$. $x=1$ & $x=-5$

b) At what *x* does *f(x)* have its minimum value? $x=-2$

c) *f(x)* = -2 when *x=0*

2) Suppose a 5-minute overseas call costs \$5.91 and a 10-minute call costs \$10.86. The cost of the call and the length of the call are related. $(5, 5.91)$ $(10, 10.86)$ $\frac{10.86-5.91}{10-5} = \frac{4.95}{5} = .99 = m$

a) Find a linear equation that expresses the amount of cost of an oversea call in terms of the number of minutes you talk.

$y - 5.91 = .99(x-5)$

b) How long can you talk on the phone if you have \$12 to spend?

$12 - 5.91 = .99(x-5)$

$6.09 = .99x - 4.95$

$11.04 = .99x$

$x = 11.15$

11 min 9 sec

3) Find the distance between the two points.

$(4, 1)$ *and* $(10, -3)$

$\sqrt{(10-4)^2 + (-3-1)^2}$

$\sqrt{6^2 + (-4)^2}$

$\sqrt{36 + 16}$

$\sqrt{52} = 2\sqrt{13}$

$2 \overline{)52}$

$2 \overline{)26}$

13

4) Write the equation in **point-slope form** for the line that passes through (6,-12) and has a slope of $-\frac{5}{3}$.

$y + 12 = -\frac{5}{3}(x - 6)$

5) Solve this system of equations, using any method.

$5x - 4y = 6$

$10x - 3y = -8$

$-2(5x - 4y = 6)$

$-10x + 8y = -12$

$5y = -20$

$y = -4$

$5x - 4(-4) = 6$

$5x + 16 = 6$

$-16 \quad -16$

$5x = -10$

$x = -2$

6) Find the **slope-intercept** equation of the line that has an x-intercept of -5 and a y-intercept of 11.

$(-5, 0)$ $(0, 11)$

$\frac{11 - 0}{0 - (-5)} = \frac{11}{5}$

$y - 0 = \frac{11}{5}(x + 5)$

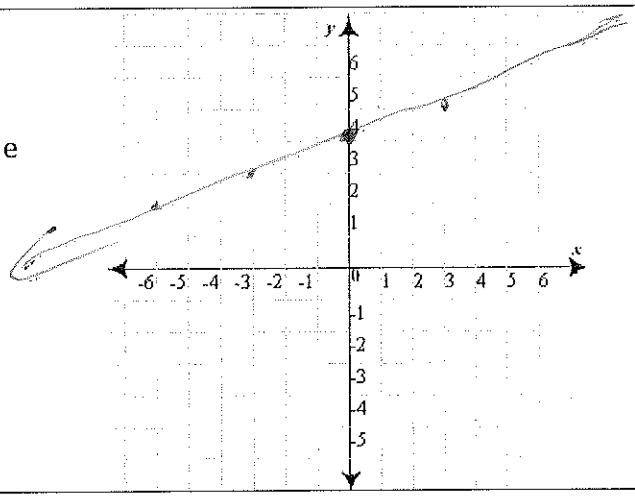
$y = \frac{11}{5}x + 11$

7) Here is a word description of a function:

"Add 12, then divide by -3."

a) Write an equation for this function. Call the input x and the output y. $y = \frac{x + 12}{3}$ or $y = \frac{1}{3}x + 4$

b) Graph



or $s = \frac{V-T}{b} + k$

8) Solve $V = T - b(s + k)$ for s.

$V = T - bs - bk$

$V - T + bk = bs$

$s = \frac{V - T + bk}{b}$

9) Solve for x:

$$9x + 2 - (3x + 8) = 2(5x - 10) - 1$$

$9x + 2 - 3x - 8 = 10x - 20 - 1$

$6x - 6 = 10x - 21$

$-6x + 21 \quad -6x + 21$

$15 = 4x$

$x = 15/4$

10) Which of the following expressions is equal to $\frac{\frac{a^3b^2}{c^5}}{\frac{a^2}{c^3}}$?

$\frac{a^3b^2}{c^5} \cdot \frac{c^3}{a^2} = \frac{ab^2}{c^2}$

11) Evaluate the following if:

$$f(x) = -4x^2 - 3x$$

$$f(2x - 1)$$

$-4(2x-1)^2 - 3(2x-1)$

$-4(4x^2 - 4x + 1) - 6x + 3$

$-16x^2 + 16x - 4 - 6x + 3$

$-16x^2 + 10x - 1$

12) Suppose that $f(x)$ is a linear function with values $f(-8) = 2$ *and* $f(4) = -4$. The graph of $f(x)$ is a line. What is the slope of this line?

$(-8, 2) \quad (4, -4)$

$\frac{-4-2}{4+8} = \frac{-6}{12} = \frac{-1}{2}$

13) Which one of the following expressions is **NOT** equal to all the of the others? (Multiple Choice)

a) $3x^5$ b) $\frac{18x^9}{6x^4}$ c) $\frac{3}{x^{-5}}$

d) $\frac{6x^7}{3x^2}$ e) $\frac{x^5}{3^{-1}}$

14) Simplify: $3\sqrt{6} \cdot 5\sqrt{6}$

$15 \cdot \sqrt{36}$

$15 \cdot 6 = 90$

15) Simplify: $\sqrt{\frac{48}{5}}$ $\frac{\sqrt{48}}{\sqrt{5}} =$

$\frac{4\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{4\sqrt{15}}{5}$

48 | 24 | 12 | 6 | 3 | 1

$4\sqrt{3}$

16) Solve the inequality and graph $|-2x + 8| \leq 6$

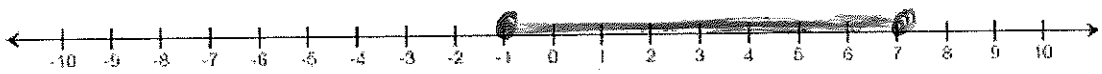
$-6 \leq -2x + 8 \leq 6$

$-8 \quad -8 \quad -8$

$\frac{-14}{-2} \leq \frac{-2x}{-2} \leq \frac{-2}{-2}$

$7 \geq x \geq 1$

$1 \leq x \leq 7$



17) Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of \$75. The school took in \$67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price each of one senior citizen ticket and one child ticket?

$8[3S + 9C = 75]$

$-3[8S + 5C = 67]$

$24S + 72C = 600$

$-24S - 15C = -201$

$57C = 399$

$C = 7$

$8S + 5(7) = 67$

$-35 \quad -35$

$8S = 32$

$S = 4$

18) Write an equation in **slope-intercept form** for the line that satisfies the following conditions:

a. Passes through (6,-2) and is parallel to the graph of $6x + 3y = -9$

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

$y + 2 = -2x + 12$

$y = -2x + 10$

$\frac{3y}{3} = \frac{-6x}{3} - \frac{9}{3}$

$y = -2x - 3$

$m = -2$

$\perp m = \frac{1}{2}$

b. Passes through (-6, 2) and is perpendicular to $12x + 3y = 8$

$y - 2 = \frac{1}{4}(x + 6)$

$y - 2 = \frac{1}{4}x + \frac{6}{4} + 2$

$y = \frac{1}{4}x + \frac{7}{2}$

$\frac{3y}{3} = \frac{-12x}{3} + \frac{8}{3}$

$y = -4x + \frac{8}{3}$

$\perp m = \frac{1}{4}$

19) Factor Completely: $6y^2 - 30y + 36$

$6(y^2 - 5y + 6)$

$6(y - 2)(y - 3)$

20) Multiply and simplify your answer as much as possible. $(x - 2)(x^2 + 2x + 7)$

$x(x^2 + 2x + 7) - 2(x^2 + 2x + 7)$

$x^3 + 2x^2 + 7x - 2x^2 - 4x - 14$

$x^3 + 3x - 14$

21) Solve for x: $10x^2 + 38x = -24$

$10x^2 + 38x + 24 = 0$

$5x^2 + 19x + 12 = 0$

$5 \cdot 12 = 60$

$4 + 15$

$\frac{(x + 4)}{5}\frac{(x + 15)}{5} = 0$

$(x + \frac{4}{5})(x + 3) = 0$

$\{-\frac{4}{5}, -3\}$