First Quarter Final Review

Chapter One:

1. Write an algebraic expression for *3 times x squared minus 4 times x.*

A $3(2x) - 4x$ **B** $4 - 3x$

C $3x^2 - 4x$ **D** $3(x^2 - 4x)$

2. The difference of twice a number x and 7 is four more than five times x.

$2x - 7 = 5x + 4$

3. Simplify $3(5a + b) + 4(a + 2b)$.

$15a + 3b + 4a + 8b = 19a + 11b$

F $9a + 5b$ **G** $19a + 3b$

H $19a + 11b$ **J** $9a + 9b$

4. Solve $-10(x - 1) = 10 - 10x$.

$-10x + 10 = 10 - 10x$

$+10x \quad\quad +10x$

$10 = 10$ true statement! ∞ all real numbers will work.

A no solution **B** 0

C -1 **D** all real numbers

5. Find the domain and range of the relation and state if the relation is a function. Why or why not?

x y x y x y x y x y

$\{(-1,0); (2,3); (5,3); (5,-1); (0,4)\}$ or

x	y
-1	0
2	3
5	3
5	-1
0	4

Better

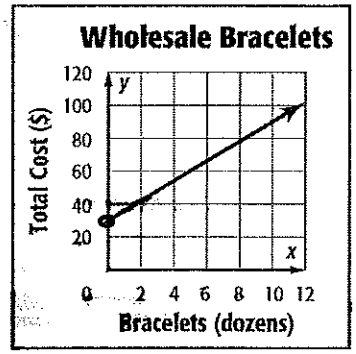
D: $\{-1, 2, 5\}$

R: $\{-1, 0, 3, 4\}$

NOT a function b/c x value of 5 repeats.

6. Interpret the *y*-intercept of the graph.

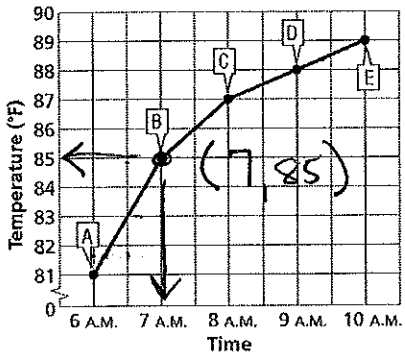
A 0 bracelets cost about $30.
B 1 dozen bracelets cost about $30.
C 28 dozen bracelets cost $0.
D Each dozen bracelets costs about $5.



y intercept = (0, 30)

7. Given the graph, identify the independent and dependent variables. Then name the ordered pair at Point B, and explain what it represents.

At 7 am, the temperature was 85°.

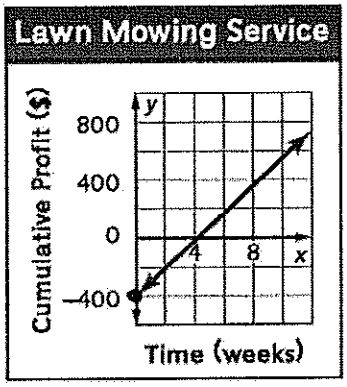


8. Identify the y intercept of the given graph and interpret its meaning.

y intercept: (0, -400)

↑ time (weeks) ↑ cumulative profit.

Before lawn mowing service starts, he owes $400 from purchasing equipment, etc.



Chapter 2:

9. Translate the following equation into a verbal sentence. $3x - y = 5(y + 2x)$

~~A~~ Three times the difference of x and y equals five times the sum of y and two times x. 3(x-y) wrong!

~~B~~ Three times x less than y is five times y plus two times x. y - 3x

~~C~~ The sum of three times x and y is five times y plus two times x. 3x + y

D Three times x minus y is five times the sum of y and two times x.

$3x - y = 5(y + 2x)$

10. Solve: $5x + 3 = 23$.

$-3 \quad -3$

$\frac{5x}{5} = \frac{20}{5}$

$x = 4$

A 4 **B** $5\frac{1}{2}$ **C** 25 **D** 15

Remove absolute value bars & write 2 equations!

11. Solve $|3r - 6| = 21$.

$3r - 6 = 21$ or $3r - 6 = -21$

$+6 \quad +6$ $\quad$ $+6 \quad +6$

$\frac{3r}{3} = \frac{27}{3}$ $\quad$ $\frac{3r}{3} = \frac{-15}{3}$

$r = 9$ $\quad$ $r = -5$

A {5, –5} **B** {9, –9} **C** {9, –5} **D** no solution

12. Solve the equation $-x + 4 = x + 6$

$+x \quad +x$

$-2x + 4 = 6$

$-4 \quad -4$

$\frac{-2x}{-2} = \frac{2}{-2}$

$x = -1$

2 equations!

13. Solve the equation. $|4t + 1| = 5$

$4t + 1 = 5$ $\quad$ $4t + 1 = -5$

$-1 \quad -1$ $\quad$ $-1 \quad -1$

$\frac{4t}{4} = \frac{4}{4}$ $\quad$ $\frac{4t}{4} = \frac{-6}{4}$

$t = 1$ $\quad$ $t = -\frac{3}{2}$

$\left\{-\frac{3}{2}, 1\right\}$

14. Solve the proportion. $\frac{4}{b-2} = \frac{4}{12}$

$4(12) = 4(b-2)$

$48 = 4b - 8$

$+8 \quad +8$

$\frac{56}{4} = \frac{4b}{4}$

$b = 14$

15. Solve $V = \frac{bh}{2}$ for h.

$2 \cdot V = \frac{bh}{2} \cdot 2$

$\frac{2V}{b} = \frac{bh}{b}$

$h = \frac{2V}{b}$

16. Solve $\frac{2x-y}{4} = t$ for x

$4 \cdot \frac{2x-y}{4} = t \cdot 4$

$2x - y = 4t$

$+y \quad +y$

$\frac{2x}{2} = \frac{4t+y}{2}$

$x = \frac{4t+y}{2}$

Chapter 3

slope: $\frac{y_2 - y_1}{x_2 - x_1}$

17. Find the slope of the line through (6, –7) and (4, –8).

$x_1, y_1 \quad x_2, y_2$

$\frac{-8-(-7)}{4-6} = \frac{-8+7}{4-6} = \frac{-1}{-2} = \frac{1}{2}$

A $-\frac{1}{2}$ B 2

C $\frac{1}{2}$ D –2

18. Find the slope of the line that passes through (2, -4) and (2, 4).

$x_1, y_1 \quad x_2, y_2$

$\frac{4-(-4)}{2-2} = \frac{4+4}{0} = \frac{8}{0}$ = Undefined!

19. Given $2x + 8 = 3y$, what is the standard form of this linear equation?

$-3y \quad -3y$

$2x - 3y + 8 = 0$

$-8 \quad -8$

$2x - 3y = -8$

20. Coach Patterson is going to ride her bike from home to golf practice at Lions Golf Course. Use the table below to find the x & y intercepts. What do the intercepts represent?

Time travelled (min)	Distance remaining (miles)
0	12
15	9
30	6
45	3
60	0

y int: (0, 12) Coach Patterson has 12 miles to bike when she starts.

x int: (60, 0) It takes Coach Patterson 60 minutes to arrive at golf practice!

21. Everyone is filling the PAC for Zenith. Find the rate of change and explain its meaning.

Time P.M.	People in Auditorium	
7:15	26	
7:22	61	35
7:24	71	10
7:30	101	30
7:40	151	50

7, 2, 6, 10

$\frac{35}{7} = \frac{5}{1}$

$\frac{10}{2} = \frac{5}{1}$

$\frac{30}{6} = \frac{5}{1}$

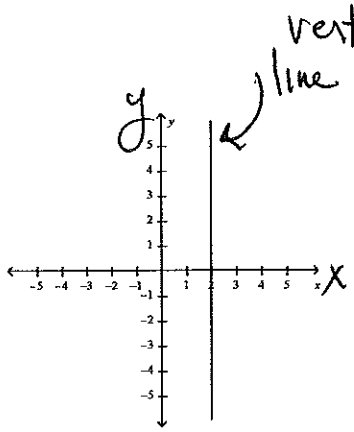
$\frac{50}{10} = \frac{5}{1}$

Constant rate of change — 5 people per 1 minute are entering the auditorium.

22. Tell whether the slope of the line is positive, negative, zero, or undefined.

(A) negative (C) zero

(B) positive (D) undefined



23. Graph $3y - x = 6$ by using the x- and y-intercepts.

(#,0) x int: $3(0) - x = 6$

$-x = 6$

$x = -6$

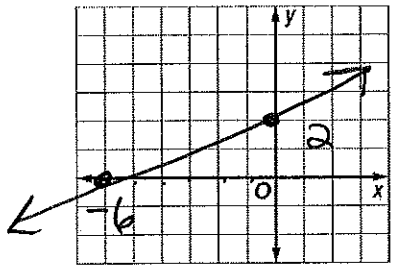
$(-6, 0)$

(0,#) y int: $3y - (0) = 6$

$3y = 6$

$y = 2$

$(0, 2)$



24. Circle which of the given ordered pairs satisfies a linear function. Explain why you chose your answer.

x	y	
0	0	+1
1	1	+3
2	4	+5
3	9	+7
4	16	

(+1, +1, +1, +1)

x	y	
-3	6	-3
-1	3	-3
1	0	-3
3	-3	-3
5	-6	

(+2, +2, +2, +2)

Constant change in both x & y values!

25. A recycling center pays 2 cents per aluminum can and 5 cents per glass bottle. The equation $2x + 5y = 100$ describes the number of cans x and number of glass bottles y that you need to earn \$1.00. What is the value of each intercept? And what does each intercept represent?

x int: (#,0) x int: $2x + 5(0) = 100$

$\frac{2x}{2} = \frac{100}{2}$

$x = 50$

x-intercept: $(50, 0)$

Meaning of x-intercept: You must collect 50 cans if you have zero bottles to earn \$1.00

y int: (0,#) y-intercept: $(0, 20)$

Meaning of y-intercept: You must collect 20 bottles if you have zero cans to earn \$1.00

y int: $2(0) + 5y = 100$

$\frac{5y}{5} = \frac{100}{5}$

$y = 20$