Unit 5 Study Guide

Chapter 4 – Graphs, Tables, Equations, & Patterns

1) Decide whether each of the following points is on the line y = 3x - 2. For each point, show your work or explain how you decided.

a. (0, -2)

$-2 = 3(0) - 2$

$-2 = -2$ ✓

b. (-2, 0)

$0 = 3(-2) - 2$

$0 = -6 - 2$ X

c. (–10, -28)

$-28 = 3(-10) - 2$

$-28 = -30 - 2$

$-28 = -32$ X

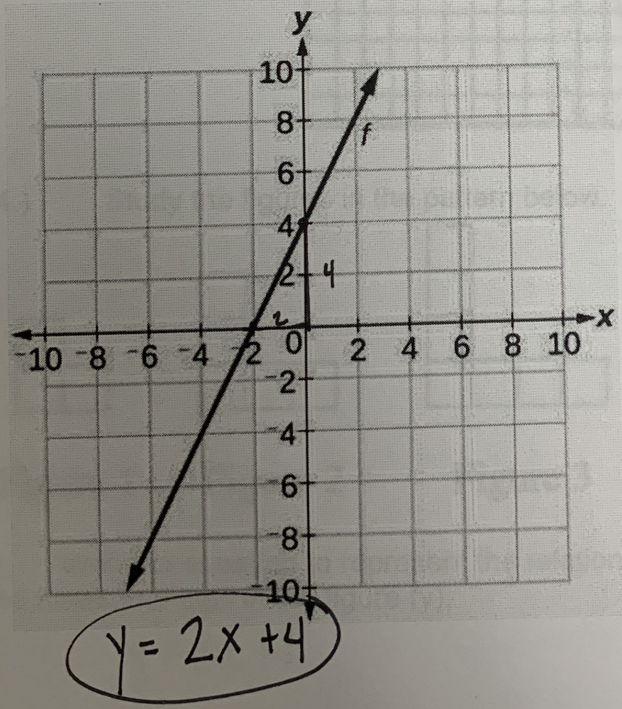
d. (20, 58)

$58 = 3(20) - 2$

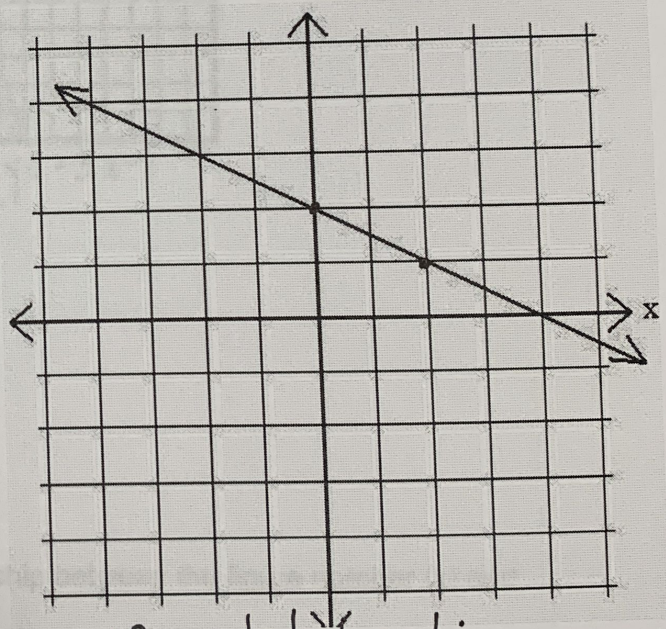
$58 = 60 - 2$

$58 = 58$ ✓

2.) Write an equation for each graph below.



$y = 2x + 4$



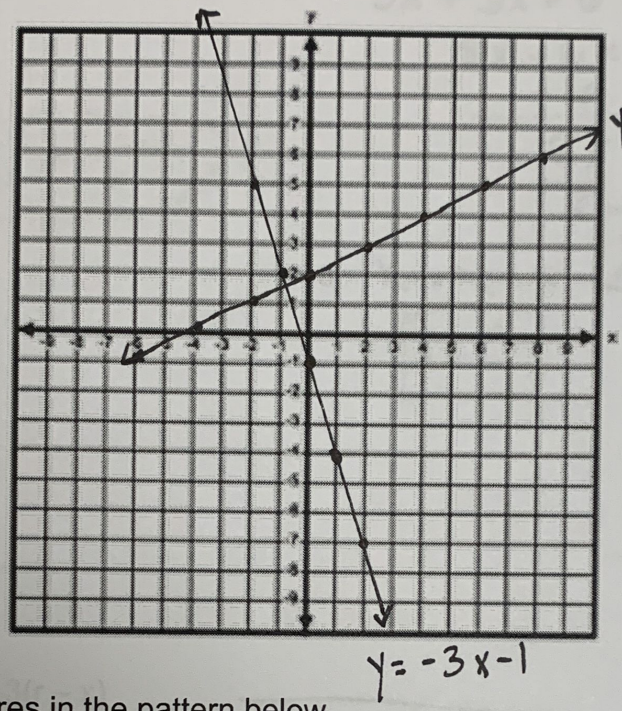
*If scaled by 1:

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

3.) Graph and label each line on the same set of axes.

a. $y = \frac{1}{2}x + 2$

b. $y = -3x - 1$



4.) Study the figures in the pattern below.

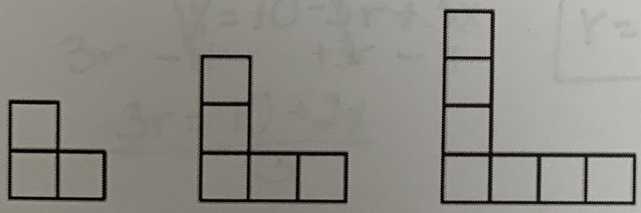


Figure 1 Figure 2 Figure 3

a. Write an equation to represent the relationship between the figure number (x) and the number of tiles in the figure (y).

$y = 2x + 1$

b. How many tiles will Figure 13 have? Show how you found your answer.

$y = 2(13) + 1$
$y = 26 + 1$
27 tiles

c. Which figure will have 145 tiles? Show how you found your answer. Chapter 3 &

$145 = 2x + 1$
$-1 \quad -1$
$144 = 2x$
2
fig 72

5 – Equations

Solve each of the following equations for x. Show your work.

5. $2x - 3(x - 4) = 5 - 3(2x + 2) - 6$

$2x - 3x + 12 = 5 - 6x - 6 - 6$

$-x + 12 = -6x - 7$

$+6x - 12 \quad +6x - 12$

$\frac{5x}{5} = \frac{-19}{5}$ $\quad x = \frac{-19}{5}$ or $-3\frac{4}{5}$

6. $\left(\frac{x}{3} + \frac{x+2}{5} = 4\right)15$

$5x + 3x + 6 = 60$

$8x + 6 = 60$

$-6 \quad -6$

$\frac{8x}{8} = \frac{54}{8}$

$x = 27/4$ or 6.75

7. $\left(\frac{x+3}{3} = \frac{x+3}{2}\right)6$

$\frac{6x + 18}{3} = \frac{6x + 18}{2}$

$2x + 6 = 3x + 9$

$-2x - 9 \quad -2x - 9$

$-3 = x$

8. $6 - x - 6 = 4x$

$x = 0$

9. Solve for r: $x = 10 - 3(r - x)$

$x = 10 - 3r + 3x$

$3r - x \quad +3r - x$

$\frac{3r}{3} = \frac{10 + 2x}{3}$

$r = 10/3 + 2/3x$

10. solve for y: $2x - 3(2x + y) = 2y + 3 - 2$

$2x - 6x - 3y = 2y + 1$

$-4x - 3y = 2y + 1$

$-1 \quad +3y \quad +3y \quad -1$

$\frac{-1 - 4x}{5} = \frac{5y}{5}$

$y = -4/5x - 1/5$

Review – Rational Numbers & Proportional Relationships

11.) $-3 + -2 \div 2 \cdot 4 + (+2) + 3$

$-3 + -1 \cdot 4 + 2 + 3$

$-3 + -4 + 2 + 3$

$-7 + 2 + 3$

$-5 + 3$

-2

12.) A copy machine produces 30 copies in 5 minutes. How many copies can the machine make in 20 minutes and how do you know?

$\frac{30 \text{ copies}}{5 \text{ min}} = \frac{? \text{ copies}}{20 \text{ min}}$ (×4)

120 copies

13) It costs $60 for 5 students to go to the movies. How much does it cost for 155 students to go?

$155 \cdot \frac{\$60}{5 \text{ students}} = \frac{x}{155} \cdot 155$

$\frac{9300}{5} = x$

$1860

OR

$\frac{\$60}{5} = \$12 \text{ per student}$

× 155

$1860

14. Which of the following equations are proportional?

a. $y = 2x$ b. $y = 3x + 1$ c $y = 4x - 2$ d $y = 3x$

15. What is 2% of 150?

150

× .02

3