

COMPASS TEST REVIEW

1. Percents

- a. What is 25% of 40?

- b. A shirt cost \$11.70 after a 35% discount. What was the original price of the shirt?

- c. 6.6% of food at a restaurant is wasted in a day. 16 pounds of food is wasted. How much total food is served in a day?

2. Ratio Problems

- a. Solve $\frac{10}{y} = \frac{3}{5}$

- b. A recipe takes 2 cups of sugar for 10 cups of flour. How much sugar should you use if you only have 8 cups of flour?

3. Lines

- a. Find the slope of the line through (2,3) and (5,7).

- b. Find the equation of a line with slope of $\frac{1}{2}$, though the point (6,2).

- c. If the slope of a line is $\frac{2}{3}$, what is the slope of the parallel line? What is the slope of the perpendicular line?

4. Polynomials

- a. Simplify $\frac{10x^2 + 5x}{5x}$

- b. Simplify $(2x + 3)(5x - 4)$

c. Divide $\frac{6x^3 - 3x^2 + 2x - 1}{3x^2 + 1}$

5. Distance and Midpoint

- a. Find the distance between (5,2) and (-4,5).
- b. Find the distance between (5,0) and (0, $\sqrt{5}$).
- c. Find the midpoint of (5,3) and (-4, 7).

6. Functions

$$f(x) = (x - 5)^2 \qquad g(x) = 5(x - 1)^2$$

Find $\frac{f(3)}{g(2)}$

7. Complex numbers

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

8. Exponents

- a. Simplify 2^{-3}
- b. Simplify $64^{\frac{-2}{3}}$

9. Moving graphs: Know what equations move a graph up, down, left, and right.

10. Story Problems

- a. Ben reads x pages a day. Jane reads 10 more pages a day than Ben. It takes Jane 10 days and Ben 12 days to read a book. How many pages a day does Ben read?

- b. A square has sides length x and a rectangle has length x and width $a-x$. The square and rectangle have the same area. Find x .

- c. The length of a rectangle is 7 units longer than the width. The length is x units. Find a formula for the area of the rectangle.

- d. A tank can be filled from pipe A in 3 hours. It can be filled from pipe B in 6 hours. Find an equation for how long it will take the tank to fill the tank from both pipes in x hours.

- e. $xy = k$ When $y = 20, x = 2$. Find x when $y = 4$

11. Scientific notation

- a. Write .000239 in scientific notation.

- b. Write 3.45×10^5 in decimal notation.

Answers:

1a. 10

1b. \$18

1c. 242.4 lbs.

2a. $y=50/3$

2b. 1.6 or $8/5$

3a. $4/3$

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

3c. $2/3, -3/2$

4a. $2x+1$

4b. $10x^2 + 7x - 12$

4c. $2x-1$

5a. $3\sqrt{10}$

5b. $\sqrt{30}$

5c. $(1/2, 5)$

6. $4/5$

7a. -5

7b. $14-8i$

8a. $1/8$

8b. $1/16$

10a. 50 pages

10b. $x=a/2$

10c. $x^2 - 7x$

10d. $\frac{1}{3}x + \frac{1}{6}x = 1$

10e. $x=10$

11a. 2.39×10^{-4}

11b. 345,000