

1. Perform the indicated operation and simplify.

a. $(x - 4)(4x^2 + 2x - 5)$

b. $(4x^2 - 9x + 1) - (2x^2 + x - 5)$

c. $(2x + 5)(2x - 5)$

$$4x^3 - 14x^2 - 13x + 20$$

$$2x^2 - 10x + 6$$

$$4x^2 - 25$$

2. Complete questions a - c for the following system of equations.

$$3x + 6y = 6$$

$$4x - 2y = -7$$

a. Write each equation in Slope-Intercept Form.

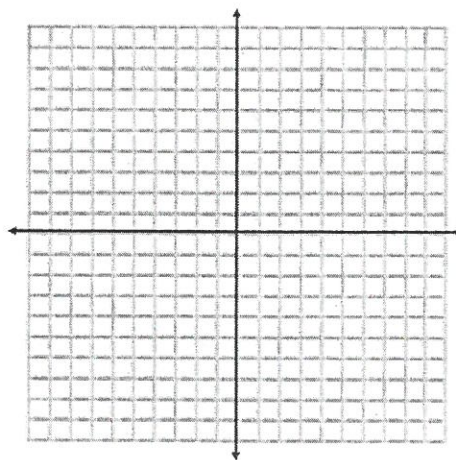
b. Solve the system of equations algebraically

(substitution or elimination)

$$(-1, 1.5)$$

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

Equation 2: $y = 2x + 3.5$

c. Solve for the system of equations graphically
(Hint: Use answers from part A)

Solution: $(-1, 1.5)$

3. Alexis and her little sister began biking at the same time in the same direction from Grinnell on RAGBRAI. Alexis rode 15 miles per hour, but her sister could only ride 12 miles per hour. When will they be 10 miles apart?

$$3\frac{1}{3} \text{ hr}$$

4. Find the set equations that are equivalent

a. $y = -\frac{1}{2}x + 8$

b. $2x + y = 8$

c. $2x + 4y = 32$

d. $y = \frac{1}{2}x + 8$

e. $y = -2x + 16$

f. $x + 2y = 16$

Equivalent Equations: A, C, F

5. Find the set of equations that are equivalent

a. $y = x^2 - 8$

b. $y = (x - 1)^2 - 9$

c. $y = x^2 - 2x + 1$

d. $y = (x + 2)(x - 4)$

e. $y = x^2 - 2x - 8$

f. $y = (2x + 4)(x - 4)$

Equivalent Equations: B, D, E

6. Jimmy's cellphone plan has a base charge of \$50 per month with an addition charge of 65¢ per app downloaded. Lisa's cellphone plan has a base charge of \$55 per month with an additional charge of 40¢ per app downloaded.

a. Write an equation for each cell phone plan.

$$y = .65x + 50$$

$$y = .40x + 55$$

b. How much will Jimmy's bill and Lisa's bill be if they both download 10 apps?

$$\$56.50$$

$$\$59$$

c. How many apps would Jimmy and Lisa need to download for their bills to be the same?

20 downloads