

10. Hector's service club is raising money by wrapping presents in the mall. The function $f(x) = 3x$ describes the amount of money (\$3 per gift) the club will earn for wrapping x presents. They only have enough wrapping paper to wrap 1000 presents.

a. Describe the independent variable for this problem.

Independent variable represents the number of gifts

b. Describe what the domain and range represent (use units).

Domain: *# of gifts*

Range: *dollars*

c. What does each value in the ordered pair (150, 450) mean in context of this problem?

If they wrap 150 presents the service club will earn \$450

-

11-18. Evaluate each expression using the values given in the table:

x	-5	-4	-3	-2	-1	0	1	2	3	4	5
f(x)	-7	-2	-9	-6	0	2	4	-1	-7	-5	-4
g(x)	12	8	4	-1	3	-5	-7	0	3	6	11

11. $f(g(-3)) = -5$ 12. $g(f(4)) = 12$ 13. $g(g(2)) = -5$ 14. $f(f(5)) = -2$

15. $(g \circ g)(-2) = 3$ 16. $(f \circ g)(-1) = -7$ 17. $(f \circ f)(0) = -1$ 18. $(g \circ f)(-4) = -1$
 $g(g(-2))$ $f(g(-1))$ $f(f(0))$ $g(f(-4))$

5. Solve each system. You must use each method once! (substitution, elimination, & Matrices).

a) $\frac{1}{2}x + \frac{1}{6}y = -\frac{4}{3}$

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

Solve by matrix

$$\begin{bmatrix} 1/2 & 1/6 \\ 1/4 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -4/3 \\ -5 \end{bmatrix}$$

$(-4, 4)$

b) $(3x + 4y = 18) - 2$

$6x + 8y = 18$

$-6x - 8y = -36$

$0 \neq -18$

Solve by elimination

$-3x + 4y = 18$ $-3x$ $6x + 8y = 18$ $-6x$

$\frac{4y}{4} = \frac{18-3x}{4}$

$\frac{8y}{8} = \frac{18-6x}{8}$

$y = \frac{9}{2} - \frac{3}{4}x$

$y = \frac{9}{4} - \frac{3}{4}x$

Same slope \Rightarrow

parallel lines
no solution

c) $5x + y = -40$

$2x - 5y = 11$

$y = -5x - 40$

Solve by substitution

$2x - 5(-5x - 40) = 11$

$2x + 25x + 200 = 11$

$\frac{27x}{27} = \frac{-189}{27}$

$x = -7$

$(-7, -5)$

d) $x + y + z = -3$

$2x - 3y + z = 9$

$4x - 5y + 2z = 16$

Solve by matrix

$$\begin{bmatrix} 1 & 1 & 1 \\ 2 & -3 & 1 \\ 4 & -5 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 \\ 9 \\ 16 \end{bmatrix}$$

$x = 4$
 $y = -2$
 $z = -5$

6. At a coffee shop bagels cost \$1.50, and muffins cost \$2.50 each. A customer bought twice as many bagels as muffins and spent a total of \$16.50. How many of each did she buy?

b = bagels
m = muffins

$1.5b + 2.5m = 16.50$

$b = 2m$

$1.5(2m) + 2.5m = 16.50$

$3m + 2.5m = 16.50$

$5.5m = 16.50$

$m = 3$ $b = 6$

muffins = 3
bagels = 6

7. Luisa spent \$64 total for 2 different skirts. The difference between costs of the skirts was \$20. What was the cost of each skirt?

$a + b = 64$

$a - b = 20$

skirt A cost 42
skirt B cost 22