

# Answers

## Chapter 4

## Linear Equations

-K 30    -A 12    -C 5

1) Solve each of the following for the variable. (30K)

A)  $\frac{4x+1}{3} = -5$

$$4x+1 = -15$$

$$4x = -16$$

$$x = -4$$

(4)

B)  $\frac{3x-1}{5} = \frac{4x+1}{9}$

$$9(3x-1) = 5(4x+1)$$

$$27x - 9 = 20x + 5$$

$$7x = 14$$

$$x = 2$$

C)  $-5x+3=18$

$$-5x = 15$$

$$x = -3$$

(4)

D)  $3(x+5)=12$

$$3x+15=12$$

$$3x = -3$$

$$x = -1$$

16

E)  $3(2x+4) = 2(x+2)$

$$6x+12 = 2x+4$$

$$4x = -8$$

$$x = -2$$

(4)

F)  $\frac{2x}{7} = 4$

$$2x = 28$$

$$x = 14$$

G)  $\frac{1}{3}(6x+12) = -8$

$$6x+12 = -24$$

$$6x = -36$$

$$x = -6$$

(4)

H)  $\frac{x}{6} + 4 = 7$

$$\frac{x}{6} = 3$$

$$x = 18$$

16

2) Rearrange each formula to solve for the indicated letter.

A)  $y = mx + b$ , solve for  $x$

$$mx + b = y$$

$$mx = y - b$$

$$x = \frac{y - b}{m}$$

2

B) Interest = (Principal) x (Rate) x (Time) Or  $I = prt$ , solve for Time ( $t$ ).

$$prt = I$$

$$\frac{prt}{pr} = \frac{I}{pr}$$

$$t = \frac{I}{pr}$$

2

6

C)  $P = 2L + 2W$ , solve for  $L$

$$2L + 2W = P$$

$$2L = P - 2W$$

$$L = \frac{P - 2W}{2}$$

2

6

3) Rewrite each equation in slope y- intercept form ( $y = mx + b$ )

A)  $2x + y - 1 = 0$

$$y = -2x + 1$$

(2)

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B)  $2x - y + 4 = 0$

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

$$y = 2x + 4$$

(2)

6

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C)  $6x + 3y - 18 = 0$

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

$$y = -2x + 6$$

(2)

$$t = \frac{I}{Pr} = \frac{180}{(3000)(0.005)} = 12$$

### APPLICATIONS

1) Use the simple interest formula  $I = prt$ , to find the length of time \$3000 would have to be invested at 0.5% to earn \$180 in interest.

$(0.005)$

12 years

4

2) Pablo borrows \$520 from his parents to buy a new snowboard. Pablo plans to pay his parents \$40 per week until his debt is paid. The amount still owing is modelled by the equation below.

Amount = 520 - 40 week Or  $A = 520 - 40w$

$A = 520 - 40(6)$

$A = 520 - 240 = \$280$

A) Use the equation to find how much Pablo will owe his parents after 6 weeks.

still owing \$280

B) How many weeks will it take for Pablo to pay off the loan.

$0 = 520 - 40w$

$520 = 40w$

$w = 13 \text{ weeks}$

3) Wembley banquet hall charges a flat fee of \$2500 for a rental, and a per-person fee of \$42.

A) Write an equation to model the total cost in dollars ( $C$ ) of holding a banquet for ( $n$ ) people.

$C = 42n + 2500$

B) How much did it cost to hold a banquet for 250 people?

$C = 2500 + 42(250) = \$13,000$

C) How many people were at the banquet hall last Friday if the total cost was \$4726.00

$4726 = 2500 + 42n$

$2226 = 42n$

$n = 53$

### PART 4- COMMUNICATION (6C) 5C

Use words to explain the steps required to solve the following problem. DO NOT SOLVE

$$\frac{2(x-5)}{4} = 6$$

→ multiply 4 on both sides /  $2(x-5) = 6 \cdot 4$

→ multiply (fac.) 2 into (x-5) ✓

$2x - 10 = 24$

→ isolate 2x ✓

$2x = 24 + 10$

→ add 10 to both sides

$2x = 34$

→ divide by 2 to get 'x' by itself

$x = 17$