

Math 8: Linear Equations Final Exam Review

• **One – Step Equations  $ax = b$ ;  $x = b$**

a

a. Solve.

$-8x = 64$   $x = -8$   $-48 = 12y$   $y = -4$   $8k = -32$   $k = -4$

b. Solve the equation. Verify the answer.

$\frac{-576}{12} = -48$   $\frac{-48}{12} = -4$   $\frac{48}{12} = 4$   $48 = \frac{-1920}{-40}$   $48 = 48$

c. The morning temperature is  $\frac{1}{4}$  of the afternoon temperature. If the afternoon temperature

is  $-24^\circ\text{C}$ . What is the <sup>morning</sup> ~~afternoon~~ temperature?  $\frac{1}{4}x = \text{morning}$   $\frac{1}{4}(-24) = -6^\circ\text{C}$

d. The number of men who are left handed is  $\frac{1}{5}$  the number of men who are right – handed.

About 12% of men in a room are left – handed. Determine how many men in the room are right – handed.  $\frac{1}{5}x = 12\%$   
 $x = 60\%$

• **Solving Two – Step Equations  $ax + b = c$**

a. Solve each equation.

$16x - 8 = 56$   $x = 4$   $16p + 32 = 48$   $p = 1$

b. Solve. Verify your answer.

$156 + 36g = 300$   $g = 4$   $156 + 36(4) = 300$   $156 + 144 = 300$   $300 = 300$  ✓

c. Sam is saving \$950 to buy a sound system. If he doubles the amount he has saved he will have 25 more than he needs. The situation can be modelled by  $2s - 25 = 850$ , where  $s$  represents the amount he saved so far?  $s = \$437.50$

d. A living room's length is 2m less than three times its width. The room has a length of 6 m. Write and solve an equation to determine the width of the living room.

length =  $3w - 2$   $w = 2.6\text{ m}$   
 $6 = 3w - 2$

• **Solving Two – Step Equations  $\frac{x}{a} + b = c$**

a

a. Solve.

$-20 + g = 12$   $g = 32$   $56 = 44 - \frac{x}{12}$   $x = 144$

b. Solve then verify.

$8 + \frac{m}{12} = 72$   $m = 768$   $8 + \frac{768}{12} = 72$   $8 + 64 = 72$   $72 = 72$

c.  $60 = -20 + \frac{x}{-24}$   $x = -1920$   $60 = -20 - \frac{1920}{-24}$   $60 = -20 + 80$   $60 = 60$

d. The cost of a concert ticket for a student is \$4 less than one quarter of the cost of an adult ticket. The cost of a student ticket is \$8. Write and solve an equation to determine the cost of an adult ticket.

student =  $\frac{1}{4}x - 4$

$8 = \frac{x}{4} - 4$

$x = \$48$

e.  $T$  is air temperature in  $^{\circ}\text{C}$  at an altitude " $h$ " metres, and  $t$  is the ground temperature  $^{\circ}\text{C}$ .

$$T = t - \frac{h}{150} \quad T = 20 - \frac{6200}{150} \quad T = -21.\bar{3}^{\circ}\text{C}$$

If the ground temperature is  $20^{\circ}\text{C}$  what is the temperature at  $6200\text{ m}$ ? What is the altitude if the outside air temperature is  $-30^{\circ}\text{C}$ ?

$$-30 = 20 - \frac{h}{150}$$

$$h = 7500\text{ m}$$

• Solving Two Step Equations  $a(x + b) = c$

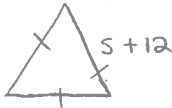
a. Solve.

$$12(t - 8) = 48 \quad t = 12 \quad 12(4 + g) = -300 \quad g = -29$$

b. Solve and verify.

$$16(m - 12) = 48 \quad m = 15 \quad 16(15 - 12) = 48 \quad 16(3) = 48 \quad 48 = 48$$

c. The side length of an equilateral triangle will be increased by  $12\text{ cm}$  on each side. The perimeter of the new triangle is  $1284\text{ cm}$ . Write and solve an equation to determine the length of the new side.



$$\text{Perimeter} = 3s$$

$$1284 = 3(s + 12)$$

$$s = 416\text{ cm}$$

$$\text{New Side} = 428\text{ cm}$$

**Questions to Review**

Chapter 10 Get Ready

Pg. 377 # 7 - 18

378 # 19 - 26

10.1 Modelling and Solving One - Step Equations

385 # 7 - 10

386 # 11 - 17

10.1 Modelling and Solving Two - Step Equations

Linear Equations Assignment 1

Linear Equations Quiz

392 # 6 - 8, 10 - 12

392 # 12 - 17

398 # 6 - 9

398 # 10 - 14

Linear Equations Assignment 2

Linear Equations Test