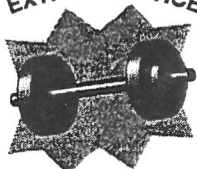


EXTRA PRACTICE



Objective 8.2 To solve a system of linear relation using a comparison method.

Chapter 3

1. Two rules for linear relations are given below. Solve this system using the comparison method.

3

$$y_1 = y_2$$

$$5x - 3 = 3x - 1$$

$$5x - 3x = -1 + 3$$

$$\frac{2x}{2} = \frac{2}{2}$$

$$x = 1$$

$$Y_1 = 5x - 3$$

$$Y_2 = 3x - 1$$

$$y_1 = 5x - 3$$

$$y_1 = 5(1) - 3$$

$$y = 5 - 3$$

$$y = 2$$

$$y_2 = 3x - 1$$

$$y = 3(1) - 1$$

$$y = 3 - 1$$

$$y = 2$$

← same →

Solution (1, 2)

2. Using the comparison method, calculate the exact solution to the following systems.

A

a) $y = 5x - 11$
 $y = 2x + 7$

$$5x - 11 = 2x + 7$$

$$5x - 2x = 7 + 11$$

$$3x = 18$$

(6, 19)

$$x = 6$$

$$y = 5(6) - 11$$

$$y = 19$$

$$y = 2(6) + 7$$

$$y = 19$$

b) $y = x - 5$
 $4x - y = 23$

$$-y = -4x + 23$$

$$y = 4x - 23$$

(6, 1)

$$x - 5 = 4x - 23$$

$$x - 4x = -23 + 5$$

$$-3x = -18$$

$$x = 6$$

$$y = 6 - 5$$

$$y = 1$$

$$y = 4(6) - 23$$

$$y = 1$$

1

3. Two truckdrivers must get from the Port of Montréal to Val d'Or by the same route. Driving at an average speed of 100 km/h, the first truckdriver has covered 100 km by the time the second driver leaves. If the latter drives at an average speed of 120 km/h, how long will it take him to catch up to the first truckdriver?

5 hours

$$100x + 100 = 120x$$

$$100 = 120x - 100x$$

$$100 = 20x$$

$$\frac{100}{20} = \frac{20x}{20}$$

$$5 = x$$

1

4. Admission to an amusement park costs \$7 plus \$1 per ride. Meanwhile, the midway at a local fair charges \$2 for admission, but \$1.50 per ride. Consider the relation between the number of rides taken and the total cost. After how many rides will the costs be the same in both places? Solve the system using the comparison method.

10 Rides

$$y = 1x + 7$$

$$y = 1.50x + 2$$

$$1x + 7 = 1.5x + 2$$

$$7 - 2 = 1.5x - 1x$$

$$\frac{5}{0.5} = \frac{0.5x}{0.5}$$

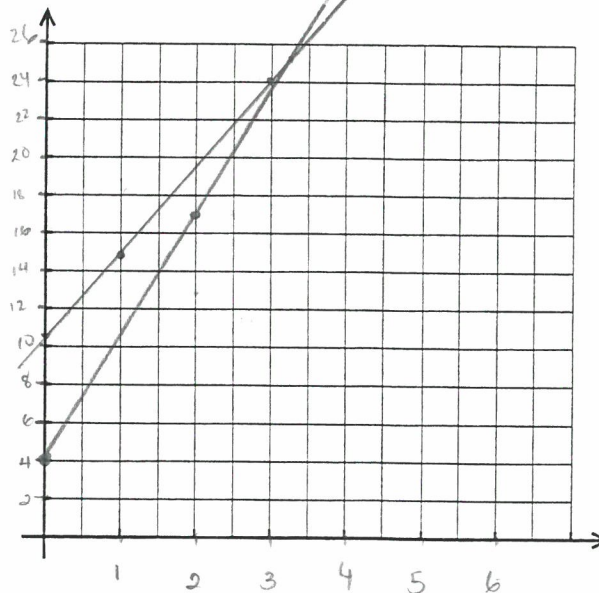
$$10 = x$$

5. Martine goes dancing at a discotheque called Charada. The cover charge is \$4 plus \$6.50 per drink. Sylvain drops into the Treasure Bar. The cover charge is \$10.50 plus \$4.50 per drink. Consider the relation between the number of drinks and the total cost at each place. After how many drinks will Martine and Sylvain have spent the same sum?

a) Solve this system using the comparison method.

(3.25, 25.125)

b) Check your result by means of a graph.



Charada $\Rightarrow y = 6.50x + 4$

Treasure $\Rightarrow y = 4.50x + 10.50$

$y_1 = y_2$

$6.5x + 4 = 4.5x + 10.50$

$6.5x - 4.5x = 10.5 - 4$

$\frac{2x}{2} = \frac{6.5}{2}$

$x = 3.25$

$y = 6.5x + 4$

$y = 6.5(3.25)$

$y = 21.125 + 4$

$y = 25.125$

$y = 4.5x + 10.5$

$= 4.5(3.25) + 10.5$

$= 14.625 + 10.5$

$= 25.125$

(3.25, 25.125)