

## Chapter 4

### More Linear Equations and Inequalities

#### Self-Test (pp. 243-244)

- The dress is cheaper online, since it costs  $\$262 + \$262(0.09) = \$285.58$  in the store and  $\$285.58 > \$285$ .
- Sample:  $8t$ , since it would isolate the variable to one side
- Sample: 40
- $$-5m + 21 + 5m = 6m - 56 + 5m;$$

$$21 + 56 = 11m - 56 + 56;$$

$$\frac{77}{11} = m \cdot \frac{11}{11}$$

$$m = 7$$
- $$0.73v + 37.9 + v = 16 - v + v$$

$$1.73v + 37.9 - 37.9 = 16 - 37.9$$

$$\frac{1.73v}{1.73} = \frac{-21.9}{1.73}$$

$$v \approx -12.659$$
- $$\frac{x}{4} + \frac{3}{5} - \frac{x}{4} = \frac{x}{2} - \frac{x}{4}$$

$$4\left(\frac{3}{5}\right) = 4\left(\frac{x}{4}\right)$$

$$x = \frac{12}{5}$$
- $$-6 + 2d > 6d - 9$$

$$-6 + 2d - 2d > 6d - 9 - 2d$$

$$-6 + 9 > 4d - 9 + 9$$

$$3 > 4d$$

$$\frac{3}{4} > \frac{4d}{4}$$

$$d < \frac{3}{4}$$
- $$-29 + 44 < 7.5p - 44 + 44 \leq 28 + 44$$

$$15 < 7.5p \leq 72$$

$$\frac{15}{7.5} < \frac{7.5p}{7.5} \leq \frac{72}{7.5}$$

$$2 < p \leq 9.6$$
- $$2x - 3 = 21 \text{ or } 2x - 3 = -21$$

$$2x - 3 + 3 = 21 + 3 \text{ or } 2x - 3 + 3 = -21 + 3$$

$$2x = 24 \text{ or } 2x = -18$$

$$x = 12 \text{ or } x = -9$$
- $$32 - 16n = -16n + 16$$

$$32 - 16n + 16n = -16n + 16n + 16$$

$$32 = 16$$

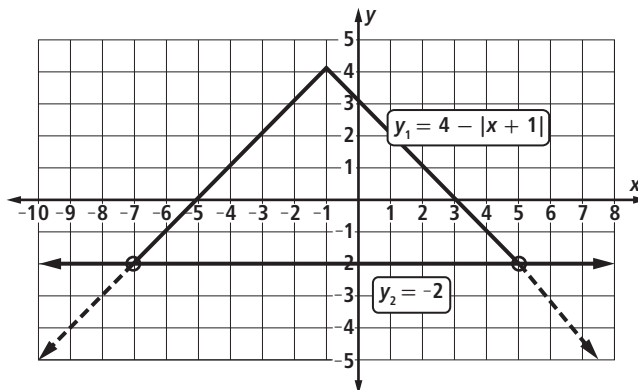
no solutions

- $x \approx 5$
  - $x \geq 5$
- Using the formula  $30,000 + 0.05s$  for TurboTV and  $25,000 + 0.08s$  for Sparkle Cable, where  $s$  is her sales, we construct the following table:

Sales	Total Salary from TurboTV	Total Salary from Sparkle Cable
\$25,000	\$31,250	\$27,000
\$50,000	\$32,500	\$29,000
\$75,000	\$33,750	\$31,000
\$100,000	\$35,000	\$33,000
\$125,000	\$36,250	\$35,000
\$150,000	\$37,500	\$37,000
\$175,000	\$38,750	\$39,000

- $s \geq \$175,000$
- TurboTV, since she would earn more there

13.

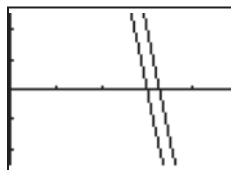


- $y = 3$
  - $x = -2$
- $$-6x + 7y - 7y = -84 - 7y$$

$$-6x = -84 - 7y$$

$$\frac{-6x}{-6} = \frac{-84}{-6} - \frac{7y}{-6}$$

$$x = 14 + \frac{7}{6}y$$
  - There is no solution, since the lines are parallel, but not the same.



17. a. 1990

- b. 1996, which tells us that the deviation was smallest that year.
- c. Sample: Bad, since they would rather produce more ice cream.

18. a.  $\frac{9}{10}E - 9 = E - 18$

$$\frac{9}{10}E - \frac{9}{10}E - 9 + 18 = E - 18 - \frac{9}{10}E + 18$$

$$9 = \frac{1}{10}E$$

$$90 = E$$

b.  $90 \cdot \frac{9}{10} = 81$

c.  $81 - 9 = 72 = 90 - 18$

19. a. Let  $n$  be the number of CDs produced.

$$452.54 + 5.25n$$

b.  $17.99n$

c.  $17.99n > 452.54 + 5.25n$

$$12.74n > 452.54$$

$$n > 35.52 \text{ so } 36 \text{ CDs or more}$$

20.  $0.3x = 7$

$$\frac{0.3x}{0.3} = \frac{7}{0.3}$$

$$x = 23\frac{1}{3}$$