

## Practice: Model With Formulas

1. Use opposite operations to rearrange each formula to isolate the indicated variable.
  - a)  $x = 3(y - 1)$ , for  $y$
  - b)  $a = -b + 5$ , for  $b$
  - c)  $m = -n + 1$ , for  $n$
  - d)  $u = -3v + 1$ , for  $v$
  - e)  $1 = 4x - 2y$ , for  $y$
2. Rearrange each formula to isolate the indicated variable.
  - a)  $x = 2y - z$ , for  $y$
  - b)  $a = -b + 2c$ , for  $b$
  - c)  $m = n + p + 2$ , for  $n$
  - d)  $u = t - 2v + 1$ , for  $v$
  - e)  $1 = x - y + z$ , for  $z$
3. Harvey is training for the track team. He can run 100 m in 20 s.
  - a) What is Harvey's speed in metres per second?
  - b) How far Harvey can run in 3 min (180 s).
  - c) How long would it take Harvey to run 1500 m?
4. A video game store offers a 1-year warranty on games. The warranty costs 6% of the average cost of a game, which is \$70.
  - a) Use the equation  $C = 70n + (0.06 \times 70)n$ , where  $n$  is the number of video games. Calculate the cost of a video game plus warranty as the number of games increase from 1 to 5.
  - b) What is the cost of 10 games with warranty?
5. John bought a new television for \$540. This total cost included a delivery charge of \$120, plus taxes of 14%. Determine the cost of the television before the delivery charge and the taxes.
6. Ted and Ben are swimming laps in a pool that is 50 m in length. They start at opposite ends of the pool at the same time. Ted swims 10 m/min faster than Ben does. After 2 min they swim by each other. How fast is each person swimming?
7. Aaron and Kat are each travelling by train. The trains depart at the same time, but travel in opposite directions. Aaron's train travels 20 km/h faster than Kat's. After 3 h, the trains are 600 km apart. How fast is each train moving?