

1.2 In-class Practice

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1. Solve for the given variable.

a) $S = 2\pi rh + 2\pi r^2$, for h

b) $s = \frac{1}{2}gt^2$, for g , then for t

c) $\frac{x-1}{2a} = 2x - a$, for x

d) $ay + b^2 = 2y - a^2$, for y

- If the length of each side of a square is increased by 3 cm, the perimeter of the new square is 40 cm more than twice the length of each side of the original square. Find the dimensions of the original square.
- The cost to install new carpet in an office is determined by a \$550 fixed fee plus a fee of \$45 per square yard of floor space to be covered. How many square yards (*to the nearest yard*) of floor space can be carpeted at a cost of \$3800?
- An artist has sold a painting for \$410,000. He needs some of the money in 6 months and the rest in 1 year. He can get a Treasury bond for 6 months at 2.65% and one for a year at 2.91%. His broker tells him the two investments will earn a total of \$8761. How much should be invested at each rate to obtain that amount of interest?
- Maria and Eduardo are traveling to a business conference. The trip takes 2 hr for Maria and 2.5 hr for Eduardo, since he lives 40 mi farther away. Eduardo travels 5 mph faster than Maria. Find their average rates of traveling.
- Lisa is a chemist. She needs a 20% solution of alcohol. She has a 15% solution on hand, as well as a 30% solution. How many liters of the 15% solution should she add to 3 L of the 30% solution to obtain her 20% solution?
- An inlet pipe can fill Blake's pool in 5 hr, while an outlet pipe can empty it in 8 hr. In his haste to surf the Internet, Blake left both pipes open. How long did it take to fill the pool?