

TEKS A.4.A



LESSON

2-5

## Problem Solving

### Solving for a Variable

Use the table below, which shows some track and field gold medal winners, to answer questions 1–4. Round all answers to the nearest tenth.

1. Solve the formula  $d = rt$  for  $r$ .

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2. Find Johnson's average speed in meters per second.

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3. Find Garcia's average speed in meters per second.

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4. The world record of 19.32 seconds in the 200-meter race was set by Michael Johnson in 1996. Find the difference between Johnson's average speed and Kenteris' average speed.

2000 Summer Olympics		
Gold Medal Winner	Race	Time (s)
M. Greene, USA	100 m	9.87
K. Kenteris, Greece	200 m	20.09
M. Johnson, USA	400 m	43.84
A. Garcia, Cuba	110 m hurdles	13.00

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Select the best answer.

5. The cost to mail a letter in the United States is \$0.34 for the first ounce and \$0.23 for each additional ounce. Solve  $C = 0.34 + 0.23(z - 1)$  for  $z$ .

**A**  $z = \frac{C - 0.34}{0.23}$

**B**  $z = \frac{C - 0.34}{0.23} + 1$

**C**  $z = \frac{C + 0.11}{0.23}$

**D**  $z = C - 0.56$

7. Degrees Celsius and degrees Fahrenheit are related by the equation

$C = \frac{5}{9}(F - 32)$ . Solve for  $F$ .

**A**  $F = 9C + 27$       **C**  $F = \frac{5}{9}C + 32$

**B**  $F = \frac{9}{5}C$       **D**  $F = \frac{9}{5}C + 32$

6. The formula  $V = \frac{Bh}{3}$  shows how to find the volume of a pyramid. Solve for  $B$ .

**F**  $B = \frac{3V}{h}$

**H**  $B = 3Vh$

**G**  $B = 3V - h$

**J**  $B = 3V + h$

8. The cost of operating an electrical device is given by the formula  $C = \frac{Wtc}{1000}$  where  $W$  is the power in watts,  $t$  is the time in hours, and  $c$  is the cost in cents per kilowatt-hour. Solve for  $W$ .

**F**  $W = 1000C - tc$

**G**  $W = \frac{Ctc}{1000}$

**H**  $W = 1000C + tc$

**J**  $W = \frac{1000C}{tc}$