

## Lesson 5 Practice Problems

1. Write with a single exponent: (ex:  $\frac{1}{10} \cdot \frac{1}{10} = 10^{-2}$ )

a.  $\frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10}$

b.  $\frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10}$

c.  $(\frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10})^2$

d.  $(\frac{1}{10} \cdot \frac{1}{10} \cdot \frac{1}{10})^3$

e.  $(10 \cdot 10 \cdot 10)^{-2}$

2. Write each expression as a single power of 10.

a.  $10^{-3} \cdot 10^{-2}$

b.  $10^4 \cdot 10^{-1}$

c.  $\frac{10^5}{10^7}$

d.  $(10^{-4})^5$

e.  $10^{-3} \cdot 10^2$

f.  $\frac{10^{-9}}{10^5}$

3. Select **all** of the following that are equivalent to  $\frac{1}{10,000}$ :

A.  $(10,000)^{-1}$

B.  $(-10,000)$

C.  $(100)^{-2}$

D.  $(10)^{-4}$

E.  $(-10)^2$

4. Match each equation to the situation it describes. Explain what the constant of proportionality means in each equation.

Equations:

a.  $y = 3x$

b.  $\frac{1}{2}x = y$

c.  $y = 3.5x$

d.  $y = \frac{5}{2}x$

Situations:

○ A dump truck is hauling loads of dirt to a construction site. After 20 loads, there are 70 square feet of dirt.

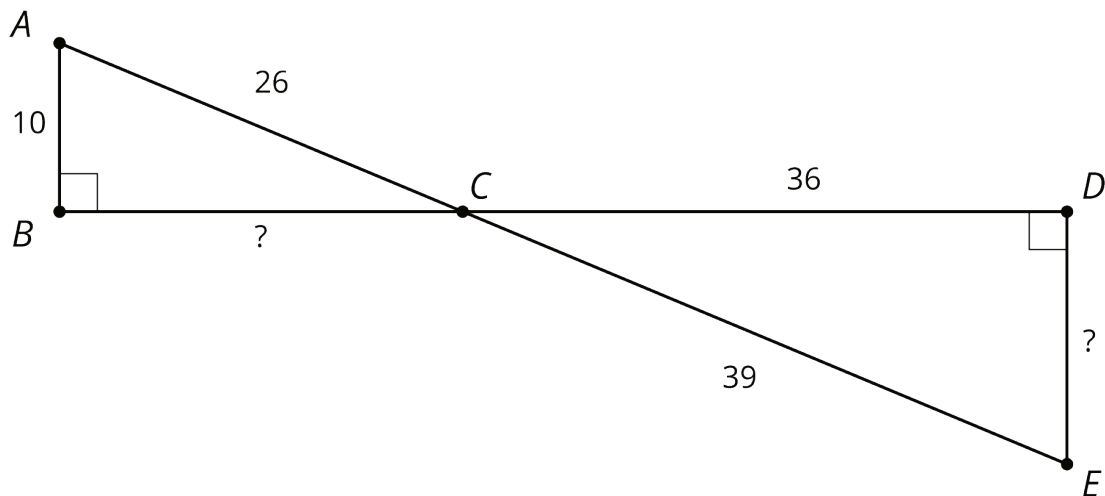
○ I am making a water and salt mixture that has 2 cups of salt for every 6 cups of water.

○ A store has a “4 for \$10” sale on hats.

○ For every 48 cookies I bake, my students get 24.

(From Unit 3, Lesson 2.)

5. a. Explain why triangle  $ABC$  is similar to  $EDC$ .



b. Find the missing side lengths.

(From Unit 2, Lesson 8.)