

4.6

Substitution and Laws of Exponents: Problem Type 1

• Example 1

Solve the equation for x in terms of y and z .

$$x^3 = \frac{y^3}{(3z)^3}$$

Using the properties of exponents we can write the right hand side as

$$\left(\frac{y}{3z}\right)^3$$

Thus we have

$$x^3 = \left(\frac{y}{3z}\right)^3$$

Taking the cube root on both sides, we obtain

$$x = \frac{y}{3z}.$$

• • • CHECK YOURSELF 1

Solve the equation for x in terms of y and z .

$$x^5 = \frac{(2z)^5}{y^5}$$

• • • CHECK YOURSELF ANSWER

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

4.6 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

Solve the following for x in terms of y and z .

$$1. x^9 = \frac{(zy)^9}{2^9}$$

$$2. x^7 = \frac{(27y)^7}{z^7}$$

$$3. x^{15} = \frac{(8z)^{15}}{(4y)^{15}}$$

$$4. x^3 = \frac{(9y)^3}{(3z)^3}$$