

5. $g^3 = g \cdot g \cdot g$

Go back to Examples 1–4, and use a calculator to evaluate the expressions.

What is the difference between $3g$ and g^3 ?

$$3g = g + g + g \text{ or } 3 \text{ times } g ; g^3 = g \times g \times g$$

6. Write the expression in expanded form, and then evaluate.

$$(3.8)^4 =$$

$$3.8 \times 3.8 \times 3.8 \times 3.8 = 208.5136$$

7. Write the expression in exponential form, and then evaluate.

$$2.1 \times 2.1 = (2.1)^2 = 4.41$$

8. Write the expression in exponential form, and then evaluate.

$$0.75 \times 0.75 \times 0.75 = (0.75)^3 = 0.421875$$

The base number can also be a fraction. Convert the decimals to fractions in Examples 7 and 8 and evaluate. Leave your answer as a fraction. Remember how to multiply fractions!

$$7. \quad \frac{21}{10} \times \frac{21}{10} = \left(\frac{21}{10}\right)^2 = \frac{441}{100} = 4\frac{41}{100}$$

$$8. \quad \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} = \left(\frac{3}{4}\right)^3 = \frac{27}{64}$$

9. Write the expression in exponential form, and then evaluate.

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \left(\frac{1}{2}\right)^3 = \frac{1}{8}$$

10. Write the expression in expanded form, and then evaluate.

$$\left(\frac{2}{3}\right)^2 = \frac{2}{3} \times \frac{2}{3} = \frac{4}{9}$$

Exercises

1. Fill in the missing expressions for each row. For whole number and decimal bases, use a calculator to find the standard form of the number. For fraction bases, leave your answer as a fraction.

Exponential Form	Expanded Form	Standard Form
3^2	3×3	9
2^6	$2 \times 2 \times 2 \times 2 \times 2 \times 2$	64
4^5	$4 \times 4 \times 4 \times 4 \times 4$	1,024
$\left(\frac{3}{4}\right)^2$	$\frac{3}{4} \times \frac{3}{4}$	$\frac{9}{16}$
$(1.5)^2$	1.5×1.5	2.25

2. Write five cubed in all three forms: exponential form, expanded form, and standard form.

$$5^3 \quad 5 \times 5 \times 5 \quad 125$$

3. Write fourteen and seven-tenths squared in all three forms.

$$(14.7)^2 \quad 14.7 \times 14.7 \quad 216.09$$

4. One student thought two to the third power was equal to six. What mistake do you think he made, and how would you help him fix his mistake?

The student multiplied the base 2 by the exponent 3. The exponent never multiplies the base. The exponent tells how many copies of the base are to be used as factors.