CHAPTER 8B WARM UPS

Check Skills You'll Need — Lesson 8-2

Simplify each expression.

1. $6 \cdot 10^4$
2. $7 \cdot 10^{-2}$
3. $8.2 \cdot 10^5$
4. $3 \cdot 10^{-3}$
5. $3.4 \cdot 10^1$
6. $5.24 \cdot 10^2$
7. Simplify $3 \times 10^2 + 6 \times 10^1 + 7 \times 10^0 + 8 \times 10^{-1}$.

Lesson Quiz — Lesson 8-2

1. Write each number in scientific notation.
   a. 0.00627
   b. 3,486,000
2. Write each number in standard form.
   a. 9.4×10^4
   b. 2.3×10^{-6}
3. Order the following numbers from least to greatest.
   0.98×10^{-1}, 1.6×10^3, 2.4×10^{-1}, 11×10^0
4. Simplify. Write the answer in scientific notation.
   $7(6.1 \times 10^{-2})$

Check Skills You'll Need — Lesson 8-1

Simplify each expression.

1. 2^3
2. $\frac{1}{4^2}$
3. $4^2 \div 2^2$
4. $(-3)^3$
5. -3^3
6. $6^2 \div 12$

Evaluate each expression for $a = 2$, $b = -1$, $c = 0.5$.

7. $\frac{a}{2a}$
8. $\frac{bc}{c}$
9. $\frac{ab}{bc}$

Lesson Quiz — Lesson 8-1

Simplify each expression.

1. 3^{-4}
2. $(-6)^0$
3. $-2a^0b^{-2}$
4. $\frac{k}{m^{-3}}$
5. $8000 \cdot 4^0$
6. $4500 \cdot 3^{-2}$

Check Skills You'll Need — Lesson 8-3

Rewrite each expression using exponents.

1. $t \cdot t \cdot t \cdot t \cdot t \cdot t \cdot t$
2. $(6 - m)(6 - m)(6 - m)$
3. $(r + 5)(r + 5)(r + 5)(r + 5)(r + 5)$
4. $5 \cdot 5 \cdot 5 \cdot s \cdot s \cdot s$

Simplify.

5. -5^4
6. $(-5)^4$
7. $(-5)^0$
8. $(-5)^{-4}$

Lesson Quiz — Lesson 8-3

Simplify each expression.

1. $3^4 \cdot 3^5$
2. $4x^5 \cdot 3x^{-2}$
3. $(-2w^{-2})(-3w^2b^{-2})(-5b^{-3})$

Write each product using scientific notation.

4. $(3 \times 10^4)(5 \times 10^2)$
5. $(7 \times 10^{-4})(1.5 \times 10^5)$
6. What is 2 trillion times 3 billion written in scientific notation?

Lesson Quiz — Lesson 8-4

Simplify each expression.

1. $(x^4)^5$
2. $x(x^5y^{-2})^3$
3. $(5a^4)^3$
4. $(1.5 \times 10^5)^2$
5. $(2w^{-2})^4(3w^2b^{-2})^3$
6. $(3 \times 10^{-5})(4 \times 10^4)^2$

Check Skills You'll Need — Lesson 8-5

Write each fraction in simplest form.

1. $\frac{5}{20}$
2. $\frac{125}{25}$
3. $\frac{60}{100}$
4. $\frac{124}{4}$
5. $\frac{6}{15}$
6. $\frac{8}{30}$
7. $\frac{10}{35}$
8. $\frac{18}{63}$
9. $\frac{5xy}{15x}$
10. $\frac{6y^2}{3x}$
11. $\frac{3ac}{12a}$
12. $\frac{24m}{6mn^2}$

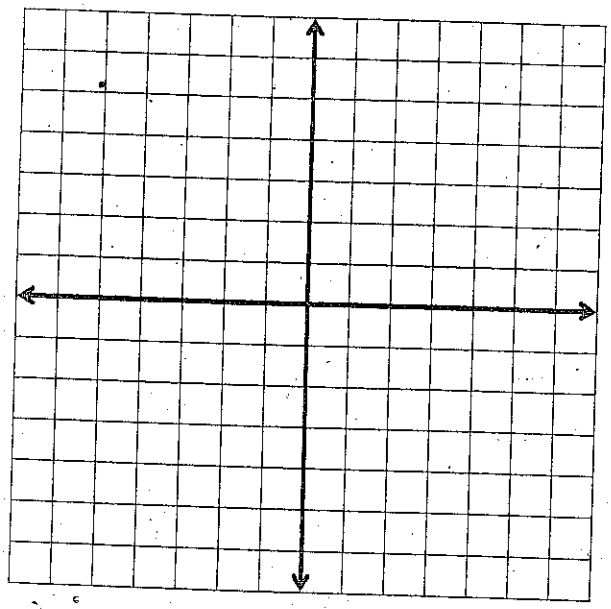
Check Skills You'll Need — Lesson 8-7

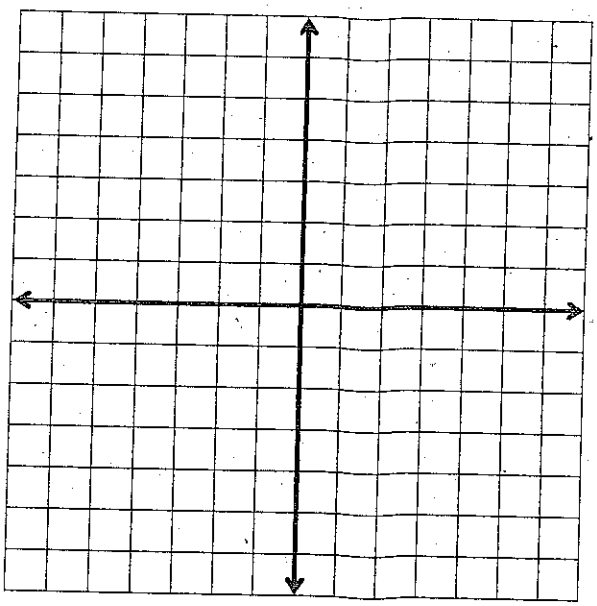
Graph each function.

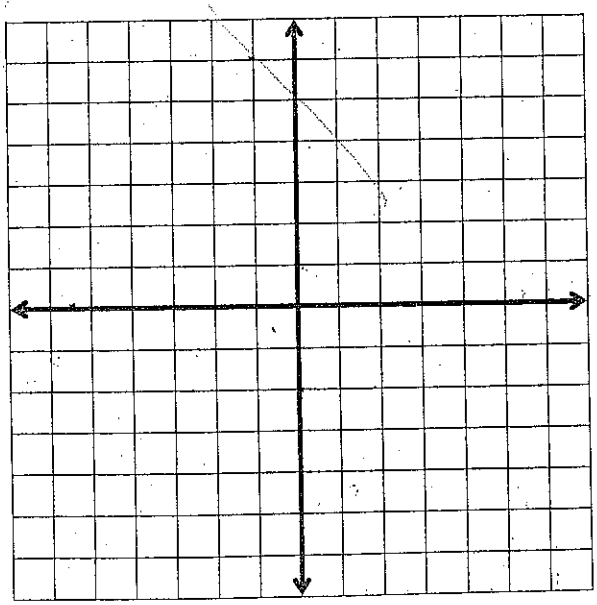
1. $y = 3x$
2. $y = 4x$
3. $y = -2x$

Simplify each expression.

4. 3^2
5. 5^{-3}
6. $2 \cdot 3^4$
7. $2 \cdot 3^{-2}$
8. $3 \cdot 2^{-1}$
9. $10 \cdot 3^2$







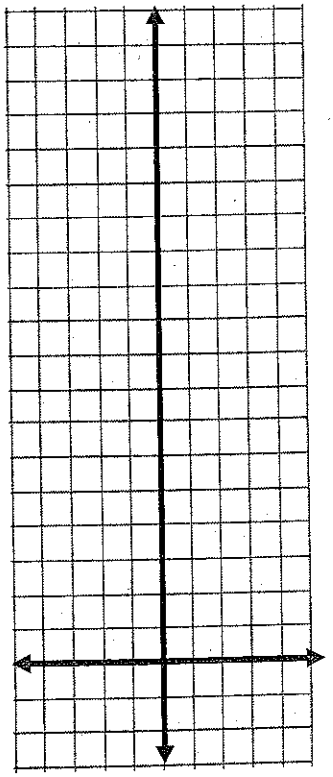
Lesson Quiz

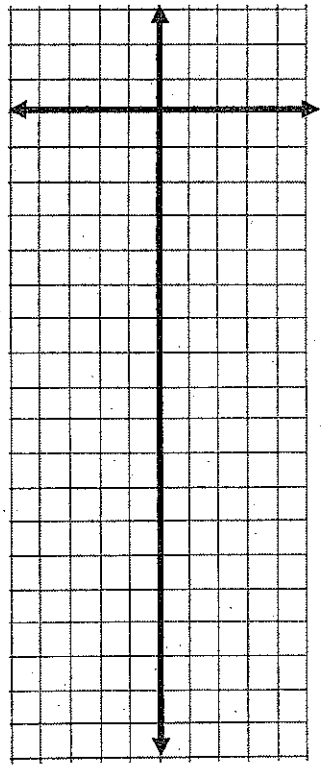
1. Evaluate each function rule for the given value.
   a. $y = 0.5^x$ for $x = 3$
   b. $f(x) = 4 \cdot 3^x$ for $x = -2$

2. Suppose an investment of $5000 doubles every 12 years.
   a. How much is the investment worth after 24 years?
   b. After 48 years?

3. Graph $y = 0.5 \cdot 3^x$.

4. Graph $y = -0.5 \cdot 3^x$.





Check Skills You'll Need — Lesson 8-8

Use the formula $I = prt$ to find the interest for principal p, interest rate r, and time t in years.

1. principal: \$1000; interest rate: 5%; time: 2 years
2. principal: \$360; interest rate: 6%; time: 3 years
3. principal: \$2500; interest rate: 4.5%; time: 2 years
4. principal: \$1680; interest rate: 5.25%; time: 4 years
5. principal: \$1350; interest rate: 4.8%; time: 5 years

Lesson Quiz — Lesson 8-8

1. Identify the original amount a and the growth factor b in the exponential function $y = 10 \cdot 1.036^x$.

2. A population of 24,500 people has been increasing at a rate of 1.8% a year. What will be the population in 15 years if it continues at that rate?

3. Write an exponential function to represent $2000 principal earning 5.6% interest compounded annually.

4. Find the account balance on $3000 principal earning 6.4% interest compounded quarterly for 7 years.

5. The half-life of a certain substance is 4 days. If you have 100 mg of the substance, how much of it will remain after 12 days?

6. The value of a $1200 computer decreases 27% annually. What will be the value of the computer after 3 years?