

## WRITTEN EXERCISES

- Simplify each expression.
3. a.  $\frac{5}{8}$  b.  $\frac{1}{1000}$  4. a. 128 b. 8 5. a.  $\frac{x^{12}}{16}$  b.  $\frac{2}{x^7}$
1. a.  $(-4)^{-2} \frac{1}{16}$  b.  $-4^{-2} - \frac{1}{16}$  2. a.  $(-3)^{-4} \frac{1}{81}$  b.  $-3^{-4} - \frac{1}{81}$
3. a.  $5 \cdot 2^{-3}$  b.  $(5 \cdot 2)^{-3}$  4. a.  $2 \div 4^{-3}$  b.  $(2 \div 4)^{-3}$
5. a.  $(x^{-2})^{-1} x^2$  b.  $((x^{-2})^{-1})^0 1$  6. a.  $(2x^{-3})^{-4}$  b.  $2x^{-3} \cdot x^{-4}$
7. a.  $(3a^{-1})^{-1}$  b.  $(3 + a^{-1})^{-1}$  8. a.  $(5x^2 \cdot x^{-2})^2$  b.  $(5x^2 + x^{-2})^2$
9. a.  $(2^{-2} + 2^{-3})^{-1}$  b.  $(2^{-2} \cdot 2^{-3})^{-1}$  10. a.  $(4^{-1} - 2^{-1})^2$  b.  $(4^{-1} \div 2^{-1})^2$
11. a.  $(a^{-1} - b^{-1})^{-1}$  b.  $(a^{-1} \cdot b^{-1})^{-1}$  12. a.  $(2 + x^{-2})^{-2}$  b.  $(2 \cdot x^{-2})^{-2}$

Copy and complete the table. The cost of each item grows exponentially.

	Item	Annual rate of increase	Cost now	Cost in 10 years	Cost in 20 years	
13.	Airplane ticket	15%	\$300	?	?	\$1214; \$4910
14.	Swim suit	8%	\$35	?	?	\$76; \$163
15.	Jar of mustard	7%	\$1	?	?	\$1.97; \$3.87
16.	College tuition	10%	\$12,000	?	?	\$31,125; \$80,730

Copy and complete the table. The value of each item decays exponentially.

	Item	Annual rate of decrease	Value now	Value in 3 years	Value in 6 years	
17.	Farm tractor	25%	\$65,000	?	?	\$27,422; \$11,569
18.	Industrial equipment	10%	\$200,000	?	?	See below.
19.	Value of the dollar	6%	\$1	?	?	\$0.83; \$0.69
20.	Value of the dollar	8%	\$1	?	?	\$0.78; \$0.61

## Additional Answers Written Exercises

7. a.  $\frac{a}{3}$

b.  $\frac{a}{3a+1}$

8. a. 25

b.  $\frac{(5x^4 + 1)^2}{x^4}$

9. a.  $\frac{8}{3}$

b. 32

10. a.  $\frac{1}{16}$

b.  $\frac{1}{4}$

11. a.  $\frac{ab}{b-a}$

b.  $ab$

12. a.  $\frac{x^4}{(2x^2 + 1)^2}$

b.  $\frac{x^4}{4}$

## Suggested Assignments

Standard

Day 1: 173/1–21 odd

Day 2: 173/23–45 odd

Comprehensive

173/1, 45 every 3rd, 46, 49