Chapter 2

Test review

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2.1

1. Write as repeated multiplication, then in standard form.

a) 4^3 b) 7^2 c) $-(-2)^5$

d) -3^4 e) -1^8 f) $(-1)^8$

3. Write as a power, then in standard form.

a) $3 \times 3 \times 3 \times 3 \times 3 \times 3$

b) $(-8)(-8)(-8)$

c) $-(2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2)$

d) 12×12

e) $4 \times 4 \times 4 \times 4 \times 4$

f) $(-5)(-5)(-5)(-5)$

7. a) Evaluate each expression.

i) -3^2 ii) $-(3)^2$ iii) $-(-3)^2$ iv) $(-3)^2$

3. Write as a power of 10.

a) one hundred million

b) $10 \times 10 \times 10 \times 10$

c) 1

d) 1 000 000 000

e) one thousand

9. Use powers of 10 to write each number.

a) 700 000 000

b) 345

c) 80 027

10. a) Copy and complete this table.

Power	Repeated Multiplication	Standard Form
3^5	$3 \times 3 \times 3 \times 3 \times 3$	243
3^4		
	$3 \times 3 \times 3$	
3^2		
		3

12. Write each number in standard form.

a) $(4 \times 10^3) + (7 \times 10^2) + (2 \times 10^1) + (9 \times 10^0)$

b) $(3 \times 10^5) + (2 \times 10^2) + (8 \times 10^0)$

14. Evaluate.

a) $2^3 + (5 - 2)^4$

b) $100 \div 2 + (4 + 1)^3$

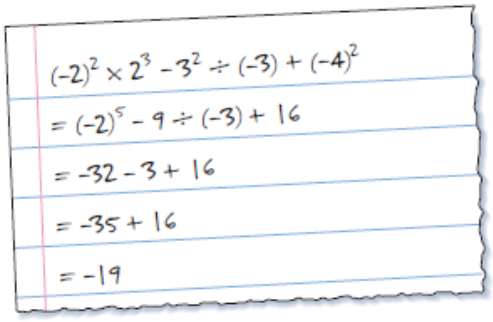
c) $(6^2 + 7^2)^0 - (8^4 + 2^4)^0$

d) $3 \times 2^3 + 8 \div 4$

e) $(21 \div 7)^4 - 2^3$

f) $[(-4)^0 \times 10]^6 \div (15 - 10)^2$

17. Identify, then correct, any errors in the student work below. Explain how you think the errors occurred.



18. Write each product as a power, then evaluate the power.

a) $5^3 \times 5^4$

b) $(-2)^3 \times (-2)^2$

c) $3^2 \times 3^3 \times 3^1$

d) $-10^4 \times 10^0$

19. There are about 10^{11} galaxies in the universe. Each galaxy contains about 10^{11} stars. About how many stars are in the universe?

20. Write each quotient as a power, then evaluate the power.

a) $7^5 \div 7^3$

b) $(-10)^9 \div (-10)^3$

c) $\frac{8^4}{8^2}$

d) $-\frac{6^7}{6^4}$

23. Write each expression as a product or quotient of powers, then evaluate it.

a) $(3 \times 5)^3$

b) $(12 \div 3)^5$

c) $[(-4) \times 2]^4$

d) $(63 \times 44)^0$

e) $\left(\frac{3}{2}\right)^5$

f) $\left(\frac{15}{2}\right)^2$

24. Write each expression as a power.

a) $(3^2)^3$

b) $(4^0)^6$

c) $[(-2)^3]^3$

d) $(5^5)^2$

26. Write each expression as a power, then evaluate.

a) $6^4 \times 6^3$

b) $(-11)^7 \div (-11)^5$

c) $\dfrac{3^4 \times 3^5}{3^3}$

d) $\dfrac{5^5}{5^3 \times 5^2}$

e) $\dfrac{(-4)^3 \times (-4)^6}{(-4)^2 \times (-4)^4}$

f) $\dfrac{10^6 \times 10^0}{10^3 \times 10^2}$

27. Simplify, then evaluate each expression.

a) $2^3 \times 2^2 - 2^0 + 2^4 \div 2^3$

b) $\dfrac{(-2)^3 \times (-2)^2}{(-2)^3 - (-2)^2}$

c) $12^2 \times 12^4 \div (-2)^4 - 12^0$

d) $\dfrac{(-12)^2 \times (-12)^4}{(-2)^4 - 12^0}$

Chapter 2

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Practice Test

1. Write as a product or quotient of powers.

a) $(3 \times 4)^3$ b) $[(-5) \times 2]^4$ c) $\left(\frac{1}{4}\right)^4$ d) $-\left(\frac{9}{3}\right)^3$

2. Simplify.

a) $-(2^3)^3$ b) $(6^2)^0$ c) $[(-5)^2]^3$ d) $-[(-3)^2]^4$

3. Simplify each expression, then evaluate it.

a) $[(-3) \times (-2)]^4$ b) $\left(\frac{1}{2}\right)^5$ c) $(6^0)^4$ d) $[(-3)^2]^3$

5. A baseball diamond is a square with side length about 27 m.
Is the area of the baseball diamond greater or less than 10^3 m^2?
How do you know?

4. Is the value of a power with a negative base always negative?
Or, is it always positive? Or, is it sometimes negative and sometimes positive?
Illustrate your answer with some examples.

6. Explain why the brackets are not necessary in this expression:
$(-3^5 \times 10) - (9 \div 3)$
Evaluate the expression, showing each step.

7. Identify the correct answer for $(2^3 + 4)^2 \times (-10)^3 \div (5 + 5)^2$.

a) -240 b) -1440 c) 1440 d) $-28\,825$

8. Evaluate only the expressions with a positive value. Explain how you know the sign of each expression before you evaluate it.

a) $(-5)^3 \times (-5)^2 \div (-5)^1$

b) $[(-9)^6 - (-9)^3]^0$

c) $\dfrac{(-1)^2 \times (-1)^4}{(-1)^3 \times (-1)^2}$

d) $(-4)^6 + (-4)^4 \times (-4)^0$