

**Practice Test Unit #2****Multiple Choice***Identify the choice that best completes the statement or answers the question.*

- \_\_\_\_\_ 1. Write the base of  $-(-5)^3$ .  
a.  $-5$                       b.  $5$                       c.  $-5 \times 3$                       d.  $3$
- \_\_\_\_\_ 2. Evaluate:  $-4^4$   
a.  $-256$                       b.  $-16$                       c.  $16$                       d.  $256$
- \_\_\_\_\_ 3. Evaluate:  $(-5)^7$   
a.  $-35$                       b.  $35$                       c.  $78\,125$                       d.  $-78\,125$
- \_\_\_\_\_ 4. Which answer is negative?  
i)  $(-6)^6$   
ii)  $-(6)^6$   
iii)  $-(-6)^6$   
a. i and ii                      b. ii and iii                      c. i only                      d. i and iii
- \_\_\_\_\_ 5. Which power is positive?  
i)  $(6)^5$   
ii)  $(-6)^5$   
iii)  $-(-6)^5$   
iv)  $-(-6)^5$   
a. i and iv                      b. iii and iv                      c. i, ii, and iv                      d. i and ii
- \_\_\_\_\_ 6. Write 1 000 000 as a power of 10.  
a.  $(1 \times 10^6) + (1 \times 10^5) + (1 \times 10^4) + (1 \times 10^2) + (1 \times 10^1) + (1 \times 10^0)$   
b.  $10^5$   
c.  $(10 \times 10^5) + (10 \times 10^4) + (10 \times 10^2) + (10 \times 10^1) + (10 \times 10^0)$   
d.  $10^6$
- \_\_\_\_\_ 7. Evaluate:  $-8^0$   
a.  $8$                       b.  $0$                       c.  $1$                       d.  $-1$
- \_\_\_\_\_ 8. Evaluate:  $(-13)^0$   
a.  $0$                       b.  $1$                       c.  $-13$                       d.  $-1$
- \_\_\_\_\_ 9. Evaluate:  $(-10^3)^0$   
a.  $1$                       b.  $-1$                       c.  $-30$                       d.  $30$
- \_\_\_\_\_ 10. Evaluate:  $(3 + 4)^2 - (2 - 4)^3$   
a.  $-31$                       b.  $57$                       c.  $20$                       d.  $41$

- \_\_\_\_ 11. Which expression has a value closest to 2?
- i)  $(-2) \times (-3) - (-3)^2 - (3 \times 2)^0$   
 ii)  $(-5 \times 3) + 4^2 - (-2)^0$   
 iii)  $(-2)^0 - (-2)^1 - (-2)^2$   
 iv)  $(-3)^2 + (-3) - (-2)^2 + (-2)^0$
- a. iii                      b. iv                      c. i                      d. ii
- \_\_\_\_ 12. Which expression has a value of 0?
- i)  $-(-7)^0 + 2 \times (-5)^0 - (-4)^0$   
 ii)  $(7 \times 5)^0 - (5 - 4)^2 + (8 - 5)^0$   
 iii)  $5 - (4 \div 4)^2 - (-8)^0$   
 iv)  $(4 \times 4 \div 8) - (5^2 - 7^2)^0 - (-7)^0$
- a. ii and iii              b. i, iii, and iv              c. i, ii, and iv              d. i and iv
- \_\_\_\_ 13. Write the product of  $5^3 \times 5^4$  as a single power.
- a.  $5^7$                       b.  $5^{12}$                       c.  $10^7$                       d.  $25^7$
- \_\_\_\_ 14. Write the quotient of  $(-8)^{12} \div (-8)^4$  as a single power.
- a. 3                      b.  $(-8)^8$                       c.  $(-8)^3$                       d.  $(-8)^{16}$
- \_\_\_\_ 15. Express  $\frac{(-5)^9 \times (-5)^6}{(-5)^3}$  as a single power.
- a.  $(-5)^5$                       b.  $(-5)^{51}$                       c.  $(-5)^{12}$                       d.  $(-5)^{18}$
- \_\_\_\_ 16. Write  $\left(\frac{11}{9}\right)^5$  as a quotient of powers.
- a.  $2^5$                       b.  $11^5 - 9^5$                       c.  $\frac{11^5}{9^5}$                       d.  $\frac{11^5}{9^1}$
- \_\_\_\_ 17. Write  $-(7^2)^3$  as a power.
- a.  $7^5$                       b.  $-7^5$                       c.  $-7^6$                       d.  $7^6$
- \_\_\_\_ 18. Write  $\left(\frac{7}{3}\right)^3$  as a quotient of powers.
- a.  $\frac{7^3}{3^3}$                       b.  $\frac{7^3}{3^1}$                       c.  $4^3$                       d.  $7^3 - 3^3$
- \_\_\_\_ 19. Evaluate:  $\left[(-5)^0\right]^3$
- a. -3                      b. -1                      c. 3                      d. 1

## Short Answer

20. Which answers are positive?

- i)  $(5)^3$
- ii)  $(-7)^6$
- iii)  $(-3)^7$
- iv)  $-(6)^3$

21. Write 27 and 243 as a power with base 3.

22. Complete this table.

Power	Base	Exponent	Repeated Multiplication
$5^3$			
$3^4$			
	7	3	
			$6 \times 6 \times 6 \times 6 \times 6$

23. Write  $(2 \times 10^4) + (5 \times 10^2)$  in standard form.

24. Identify, then correct, any errors in the work below.

$$\begin{aligned}(5+3)^2 \times 4 + 5 \\&= 8^2 \times 9 \\&= 64 \times 9 \\&= 576\end{aligned}$$

25. Write the product of  $7^6 \times 7^7$  as a single power.

26. Write the quotient of  $\frac{(-7)^9}{(-7)^5}$  as a single power.

27. Simplify, then evaluate.

$$\frac{(-2)^6 \times (-2)^2}{(-2)^3 \times (-2)^0}$$

28. A field measures  $10^5$  m by  $10^4$  m.

- a) Write an expression for the area of the field, using powers of 10.
- b) Write an expression for the perimeter of the field, using powers of 10.

29. Simplify, then evaluate.

$$\left(\frac{2^2}{5^0}\right)^4$$

30. Simplify, then evaluate.

$$\frac{(2^4)^3 \times (2^2)^4}{(2^4 \times 2^4)^2}$$

31. Simplify, then evaluate.

$$\left[(-2)^4 \times (-2)^3\right] - \left[(-3)^4 \div (-3)^3\right]$$

32. Express  $\left[(7^2)^4\right]^3$  as a single power of 7.

### Problem

33. Where possible, replace  $\square$  with a “+” or “-” sign to make each product positive.

a)  $-(\square 9)^{11}$

b)  $\square(-9)^{12}$

c)  $-(\square 9)^{12}$

d)  $\square(-9)^{11}$

Can all products be made positive? Explain.

34. One estimate shows that the number of people without access to safe drinking water is about one billion. How much water is required if each person who does not have access to safe drinking water is given 10 L of safe drinking water?

Give your answer in standard form and using powers of 10.

35. Evaluate:  $\frac{(15)^2 - (6)^2}{(9)^2 - 2(3)^2}$

Show your calculations.

36. Simplify, then evaluate. Show your work.

$$\frac{7^2 \times 2^3 \times 7^1 \times 2^2 \times 7^3 \times 2^1 \times 7^0}{7^2 \times 2^0 \times 7^2 \times 2^2 \times 2^1}$$