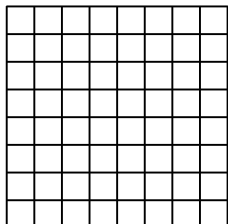


Math 9: Powers Test**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

1. Write the number of unit squares in this large square as a power.



- a. 8×8 b. 8^2 c. 8×4 d. 8^8
2. Write 9^5 as repeated multiplication.
- a. $9 \times 9 \times 9 \times 9 \times 9$ c. $9 \times 9 \times 9 \times 9 \times 9 \times 9$
b. $9 + 9 + 9 + 9 + 9$ d. 5×9
3. Evaluate: -3^6
- a. 729 b. 18 c. -18 d. -729
4. 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
5. State which operation you would do first to evaluate $6 + 7 \times 4^2 - 3$.
- a. Subtract 3 from 4 c. Square 4
b. Add 6 and 7 d. Multiply 7 and 4

6. Which is the correct value of $3^2 + 4 \times 6 - 4$?

i) 26

ii) 17

iii) 29

iv) 74

a. ii

b. iv

c. i

d. iii

7. Write the quotient of $\frac{6^8}{6^4}$ as a single power.

a. 6^{12}

b. 6^2

c. 6^4

d. 2

8. Write the quotient of $(-8)^9 \div (-8)^3$ as a single power.

a. $(-8)^{12}$

b. $(-8)^6$

c. $(-8)^3$

d. 3

9. Evaluate: $\frac{(5)^8 \times (5)^6}{(5)^{12}}$

a. 25

b. 10

c. 2

d. 4

10. Evaluate: $(-2)^3 \times (-2)^4 \div (-2)^0$

a. 128

b. 64

c. 4096

d. 6128

11. Write $\left(\frac{5}{3}\right)^3$ as a quotient of powers.

a. $5^3 - 3^3$

b. 2^3

c. $\frac{5^3}{3^1}$

d. $\frac{5^3}{3^3}$

12. Write $\left(\frac{5}{3}\right)^5$ as a quotient of powers.

- a. $5^5 - 3^5$ b. $\frac{5^5}{3^5}$ c. $\frac{5^5}{3^1}$ d. 2^5

13. Evaluate: $[(-4) \times (5)]^3$

- a. 8000 b. 61 c. 1 d. -8000

14. Which expressions have negative values?

i) $\left[-(-3)^4\right]^4$

ii) $\left(-3^4\right)^4$

iii) $\left[(-3)^4\right]^4$

iv) $-\left[(-3)^4\right]^4$

- a. iii and iv b. i and iv c. ii and iii d. i and ii

15. Write the base of $-(-3)^4$.

- a. 3 b. -3×4 c. 4 d. -3

16. Write $(-3) \times (-3) \times (-3) \times (-3) \times (-3) \times (-3)$ as a power.

- a. $(-3)^5$ b. $(-3)^6$ c. $(-3)^6$ d. $6 \times (-3)$

17. Write $(5)(5)(5)(5)(5)(5)(5)(5)$ as a power.

- a. 8×5 c. $(5)(5)(5)(5)(5)(5)(5)(5)$
b. 5^7 d. 5^8

18. Which answer is negative?

i) $(-6)^{10}$

ii) $-(-6)^{10}$

iii) $(-6)^{10}$

a. i and iii

b. i only

c. ii and iii

d. i and ii

19. Evaluate: -4^0

a. 61

b. 0

c. 1

d. 4

20. Evaluate: $(-12)^0$

a. 61

b. 612

c. 1

d. 0

21. Evaluate: $(-10^7)^0$

a. -70

b. 1

c. -1

d. 70

22. Evaluate: $3^3 - (-4)^3$

a. 91

b. 63

c. 21

d. 637

23. Evaluate: $(4^3 - 3^2)^0 - (5^2 - 8^0)$

a. 30

b. -25

c. 623

d. 624

24. Write the product of $5^2 \times 5^3$ as a single power.

a. 5^5

b. 25^5

c. 5^6

d. 10^5

25. Express $\frac{(-5)^4 \times (-5)^{12}}{(-5)^8}$ as a single power.

a. $(-5)^{40}$

b. $(-5)^8$

c. $(-5)^6$

d. $(-5)^2$

Short Answer

26. Evaluate: $\frac{4^3 \times (3+3)^2 \times 6(-13)^0}{-(3)^0 \times 6^3 \times (7-3)^2}$

27. Simplify, then evaluate.

$$(-2)^5 \times (-2)^7 \div (-2)^6$$

28. Express $\left[(7^4)^6 \right]^5$ as a single power of 7.

29. Simplify, then evaluate.

$$\frac{(2^4)^3 \times (2^4)^2}{(2^3 \times 2^5)^2}$$

Problem

30. Evaluate: $5(5)^4 - 3(-3)^5$
Show your steps.

31. Evaluate: $\frac{(25)^2 - (10)^2}{(15)^2 - 2(5)^2}$
Show your calculations.

**Math 9: Powers Test
Answer Section****MULTIPLE CHOICE**

1. B
2. A
3. D
4. D
5. C
6. D
7. C
8. B
9. A
10. D
11. D
12. B
13. D
14. C
15. D
16. C
17. D
18. C
19. A
20. C
21. B
22. A
23. C
24. A
25. B

SHORT ANSWER

26. -4
27. $(-2)^6 = 64$
28. $\left[(7^4)^6 \right]^5 = 7^{4 \times 6 \times 5} = 7^{120}$

$$29. \frac{(2^4)^3 \times (2^4)^2}{(2^3 \times 2^5)^2} = \frac{2^{20}}{2^{16}} = 2^4 = 16$$

PROBLEM

$$30. \begin{aligned} 5(5)^4 - 3(-3)^5 &= 5 \times 625 - 3 \times (-243) \\ &= 3125 + 729 \\ &= 3854 \end{aligned}$$

$$31. \begin{aligned} &\frac{(25)^2 - (10)^2}{(15)^2 - 2(5)^2} \\ &= \frac{625 - 100}{225 - 50} \\ &= \frac{525}{175} \\ &= 3 \end{aligned}$$