

January Exam Review - Unit 2

Multiple Choice

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

- _____ 1. Write the base of $-(-6)^3$.
a. 6 b. -6 c. -6×3 d. 3
- _____ 2. Evaluate: 6^5
a. 30 b. 7776 c. 15 625 d. 11
- _____ 3. Evaluate: -4^4
a. -256 b. -16 c. 16 d. 256
- _____ 4. Evaluate: $(-5)^7$
a. -35 b. 35 c. 78 125 d. -78 125
- _____ 5. Which answer is negative?
i) $(-7)^8$
ii) $-(7)^8$
iii) $-(-7)^8$
a. i and ii b. i and iii c. ii and iii d. i only
- _____ 6. 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
- _____ 7. Evaluate: -8^0
a. 1 b. -1 c. 0 d. 8
- _____ 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: $6^5 - 3^3$
a. 6561 b. 9 c. 7749 d. 21
- _____ 11. Evaluate: $(5^3 - 4^2)^0 - (6^2 - 8^0)$
a. -34 b. -35 c. -36 d. 73
- _____ 12. Evaluate: $(3+4)^2 - (2-4)^3$
a. -31 b. 57 c. 20 d. 41

- ___ 13. Which expression has a value of 0?
 i) $-(-5)^0 + 2 \times (-3)^0 - (-2)^0$
 ii) $(5 \times 3)^0 - (3 - 2)^2 + (4 - 3)^0$
 iii) $3 - (2 \div 2)^2 - (-4)^0$
 iv) $(4 \times 2 \div 4) - (3^2 - 5^2)^0 - (-5)^0$
 a. i, ii, and iv b. ii and iii c. i, iii, and iv d. i and iv
- ___ 14. 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
- ___ 15. Write the product of $(-7)^7 \times (-7)^3$ as a single power.
 a. $(-7)^{10}$ b. $(-14)^{10}$ c. 49^{10} d. $(-7)^{21}$
- ___ 16. Write the quotient of $\frac{6^{10}}{6^5}$ as a single power.
 a. 6^5 b. 6^{15} c. 6^2 d. 2
- ___ 17. Write the quotient of $(-8)^{15} \div (-8)^5$ as a single power.
 a. 3 b. $(-8)^{20}$ c. $(-8)^3$ d. $(-8)^{10}$
- ___ 18. Express $\frac{(-5)^9 \times (-5)^6}{(-5)^3}$ as a single power.
 a. $(-5)^5$ b. $(-5)^{51}$ c. $(-5)^{12}$ d. $(-5)^{18}$
- ___ 19. Evaluate: $(-7)^6 \div (-7)^6$
 a. 0 b. -7 c. 1 d. -1
- ___ 20. Evaluate: $\frac{(5)^8 \times (5)^6}{(5)^{12}}$
 a. 10 b. 4 c. 2 d. 25
- ___ 21. Evaluate: $(-2)^5 \times (-2)^3 \div (-2)^0$
 a. -128 b. -256 c. 256 d. -32 768
- ___ 22. Which expressions have positive values?
 i) $\left[(-5)^2\right]^7$
 ii) $\left[-(-5)^2\right]^7$
 iii) $-(5^2)^7$
 iv) $-[-(-5)^2]^7$
 a. ii and iv b. ii and iii c. i and ii d. i and iv

_____ 23. Which expressions have negative values?

i) $\left[-(-3)^5\right]^5$

ii) $\left(-3^5\right)^5$

iii) $\left[(-3)^5\right]^5$

iv) $-\left[(-3)^5\right]^5$

a. ii and iii

b. i and ii

c. i and iv

d. iii and iv

Short Answer

24. Which answers are positive?

i) $(5)^3$

ii) $(-7)^6$

iii) $(-3)^7$

iv) $-(6)^3$

25. Evaluate: $\frac{5^3 \times (2+4)^2 \times 6(-9)^0}{-(4)^0 \times 6^3 \times (7-2)^2}$

26. Simplify, then evaluate.

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

27. Simplify, then evaluate.

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

28. Simplify, then evaluate.

$$(4^6 \div 4^3)^2 - (2^8 \div 2^6)^2$$

29. Simplify, then evaluate.

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

Problem

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

January Exam 2011 Review - Unit 2

Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: Easy REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Conceptual Understanding
2. ANS: B PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Procedural Knowledge
3. ANS: A PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Procedural Knowledge
4. ANS: D PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Procedural Knowledge
5. ANS: C PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Conceptual Understanding
6. ANS: A PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Conceptual Understanding
7. ANS: B PTS: 1 DIF: Easy
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
8. ANS: B PTS: 1 DIF: Easy
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
9. ANS: A PTS: 1 DIF: Moderate
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
10. ANS: C PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
11. ANS: A PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
12. ANS: B PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
13. ANS: D PTS: 1 DIF: Difficult
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
14. ANS: A PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
15. ANS: A PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
16. ANS: A PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
17. ANS: D PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
18. ANS: C PTS: 1 DIF: Moderate REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge

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|-----|---------------------|-----------------------|--|---------------------------|
| 19. | ANS: C
LOC: 9.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Procedural Knowledge | REF: 2.4 Exponent Laws I |
| 20. | ANS: D
LOC: 9.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Procedural Knowledge | REF: 2.4 Exponent Laws I |
| 21. | ANS: C
LOC: 9.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Procedural Knowledge | REF: 2.4 Exponent Laws I |
| 22. | ANS: D
LOC: 9.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Conceptual Understanding | REF: 2.5 Exponent Laws II |
| 23. | ANS: A
LOC: 9.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Conceptual Understanding | REF: 2.5 Exponent Laws II |

SHORT ANSWER

24. ANS:

The answers for i and ii are positive.

PTS: 1	DIF: Moderate	REF: 2.1 What Is a Power?
LOC: 9.N1	TOP: Number	KEY: Conceptual Understanding

25. ANS:

-5

PTS: 1	DIF: Difficult	REF: 2.3 Order of Operations with Powers
LOC: 9.N1	TOP: Number	KEY: Procedural Knowledge

26. ANS:

$$(-2)^5 = -32$$

PTS: 1	DIF: Moderate	REF: 2.4 Exponent Laws I
LOC: 9.N2	TOP: Number	KEY: Procedural Knowledge

27. ANS:

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

PTS: 1	DIF: Moderate	REF: 2.5 Exponent Laws II
LOC: 9.N2	TOP: Number	KEY: Procedural Knowledge

28. ANS:

$$(4^6 \div 4^3)^2 - (2^8 \div 2^6)^2 = (4^3)^2 - (2^2)^2 = 4^6 - 2^4 = 4080$$

PTS: 1	DIF: Moderate	REF: 2.5 Exponent Laws II
LOC: 9.N2	TOP: Number	KEY: Procedural Knowledge

29. ANS:

$$\left[(-2)^4 \times (-2)^3 \right] - \left[(-3)^4 \div (-3)^3 \right] = (-2)^7 - (-3)^1 = -125$$

PTS: 1	DIF: Moderate	REF: 2.5 Exponent Laws II
LOC: 9.N2	TOP: Number	KEY: Procedural Knowledge

PROBLEM

30. ANS:

$$\begin{aligned} & \frac{(15)^2 - (6)^2}{(9)^2 - 2(3)^2} \\ &= \frac{225 - 36}{81 - 18} \\ &= \frac{189}{63} \\ &= 3 \end{aligned}$$

PTS: 1

LOC: 9.N1

DIF: Moderate

TOP: Number

REF: 2.3 Order of Operations with Powers

KEY: Problem-Solving Skills | Communication