January Exam Review
Unit 2

Answers are on Slides 32 - 35

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1. Write the base of $-(-6)^3$.

a. 6 b. -6 c. -6×3 d. 3

Base -6

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2. Evaluate: 6^5

a. 30 b. 7776 c. 15 625 d. 11

$6^5 = 7776$

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3. Evaluate: -4^4

a. −256 b. −16 c. 16 d. 256

$-4^4 = -256$

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4. Evaluate: $(-5)^7$

a. -35 b. 35 c. 78 125 d. $-78\ 125$

$(-5)^7 = -78125$

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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

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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

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7. Evaluate: -8^0

a. 1 b. −1 c. 0 d. 8

$-8^0 = -1$

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8. Evaluate: $(-13)^0$

a. 0 b. 1 c. −13 d. −1

$(-13)^0 = 1$

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9. Evaluate: $(-10^3)^0$

a. 1 b. −1 c. −30 d. 30

$(-10^3)^0$

$= 1$

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10. Evaluate: $6^5 - 3^3$

a. 6561 b. 9 c. 7749 d. 21

$6^5 - 3^3$

$7776 - 27$

$= 7749$

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11. Evaluate: $(5^3 - 4^2)^0 - (6^2 - 8^0)$

a. –34 b. –35 c. –36 d. 73

$(5^3 - 4^2)^0 - (6^2 - 8^0)$

$1 - (36 - 1)$

$1 - (35)$

$= -34$

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12. Evaluate: $(3+4)^2-(2-4)^3$

a. –31 b. 57 c. 20 d. 41

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

$(7)^2-(-2)^3$

$49-(-8)$

57

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13. Which expression has a value of 0?

i) $-(-5)^0+2\times(-3)^0-(-2)^0$

ii) $(5\times3)^0-(3-2)^2+(4-3)^0$

iii) $3-(2\div2)^2-(-4)^0$

iv) $(4\times2\div4)-(3^2-5^2)^0-(-5)^0$

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

i) $-(-5)^0+2\times(-3)^0-(-2)^0$

$-(1)+2\times1-(1)$

$-1+2-1$

$=0$

ii) $(5\times3)^0-(3-2)^2+(4-3)^0$

$(1)-(1)^2+1$

$1-1+1$

$=1$

iii) $3-(2\div2)^2-(-4)^0$

$3-(1)^2-1$

$3-1-1$

1

iv) $(4\times2\div4)-(3^2-5^2)^0-(-5)^0$

$(2)-(1)-1$

$=0$

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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

$5^3 \times 5^4 = 5^7$

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15. Write the product of $(-7)^7 \times (-7)^3$ as a single power.

a. $(-7)^{10}$ b. $(-14)^{10}$ c. 49^{10} d. $(-7)^{21}$

$(-7)^7 \times (-7)^3$

$= (-7)^{10}$

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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

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17. Write the quotient of $(-8)^{15} \div (-8)^5$ as a single power.

a. 3 b. $(-8)^{20}$ c. $(-8)^3$ d. $(-8)^{10}$

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18. Express $\frac{(-5)^9 \times (-5)^6}{(-5)^3}$ as a single power.

a. $(-5)^5$ b. $(-5)^{51}$ c. $(-5)^{12}$ d. $(-5)^{18}$

$$\frac{(-5)^9 \times (-5)^6}{(-5)^3} = \frac{(-5)^{15}}{(-5)^3} = (-5)^{12}$$

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19. Evaluate: $(-7)^6 \div (-7)^6$

a. 0 b. −7 c. 1 d. −1

$$(-7)^6 \div (-7)^6 = (-7)^0$$

$$= 1$$

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

a. 10 b. 4 c. 2 d. 25

$$\frac{(5)^8 \times (5)^6}{(5)^{12}} = \frac{5^{14}}{5^{12}} = 5^2$$

$$= 25$$

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21. Evaluate: $(-2)^5 \times (-2)^3 \div (-2)^0$

a. −128 b. −256 c. 256 d. −32 768

$$(-2)^5 \times (-2)^3 \div (-2)^0$$

$$(-2)^8 \div (-2)^0$$

$$= (-2)^8$$

$$= 256$$

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22. Which expressions have positive values?

i) $\left[(-5)^2\right]^7 = (-5)^{14} = +$

ii) $\left[-(-5)^2\right]^7 = -(-5)^{14} = (-)(+) = -$

iii) $-\left(5^2\right)^7 = -5^{14} = (-)(+) = -$

iv) $-\left[-(-5)^2\right]^7 = --(-5)^{14} = (+)(+) = +$

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

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23. Which expressions have negative values?

i) $\left[-(-3)^5\right]^5 = -(-3)^{25} = -(-) = +$

ii) $\left(-3^5\right)^5 = -3^{25} = (-)$

iii) $\left[(-3)^5\right]^5 = (-3)^{25} = (-)$

iv) $-\left[(-3)^5\right]^5 = -(-3)^{25} = -(-) = +$

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

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24. Which answers are positive?

i) $(5)^3$ +

ii) $(-7)^6$ +

iii) $(-3)^7$ −

iv) $-(6)^3$ −

i , ii

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

Top

$5^3 \times (2+4)^2 \times 6(-9)^0$

$125 \times (8)^2 \times 6(1)$

$125 \times 64 \times 6$

$27\,000$

Bottom

$-(4)^0 \times 6^3 \times (7-2)^2$

$-1 \times 216 \times (5)^2$

$-1 \times 216 \times 25$

-5400

$$\frac{27000}{-5400} = \boxed{-5}$$

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26. Simplify, then evaluate.

$$\frac{(-2)^6 \times (-2)^2}{(-2)^3 \times (-2)^0} = \frac{(-2)^8}{(-2)^3} = (-2)^5$$

$$= -32$$

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27. Simplify, then evaluate.

$$\frac{(2^4)^3 \times (2^2)^4}{(2^4 \times 2^4)^2} = \frac{2^{12} \times 2^8}{(2^8)^2} = \frac{2^{20}}{2^{16}}$$

$$= 2^4$$

$$= 16$$

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28. Simplify, then evaluate.

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

$(4^3)^2 - (2^2)^2$

$4^6 - 2^4$

$4096 - 16$

4080

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29. Simplify, then evaluate.

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

$(-2)^7 - (-3)^1$

$-128 - (-3)$

$= -125$

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30. Evaluate: $\dfrac{(15)^2-(6)^2}{(9)^2-2(3)^2}$ $= \dfrac{225-36}{81-2(9)} = \dfrac{189}{81-18}$

Show your calculations.

$= \dfrac{189}{63}$

$= 3$

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Answer Section

MULTIPLE CHOICE

PTS: 1 DIF: Easy REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Conceptual Understanding
PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Procedural Knowledge
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PTS: 1 DIF: Moderate REF: 2.1 What Is a Power?
LOC: 9.N1 TOP: Number KEY: Conceptual Understanding
PTS: 1 DIF: Easy
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Easy
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate
REF: 2.2 Powers of Ten and the Zero Exponent LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge

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PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Difficult
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Easy REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge

PTS: 1 DIF: Moderate REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
PTS: 1 DIF: Moderate REF: 2.5 Exponent Laws II
LOC: 9.N2 TOP: Number KEY: Conceptual Understanding
PTS: 1 DIF: Moderate REF: 2.5 Exponent Laws II
LOC: 9.N2 TOP: Number KEY: Conceptual Understanding

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SHORT ANSWER

The answers fo nc re positive.

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

PTS: 1 DIF: Difficult REF: 2.3 Order of Operations with Powers
LOC: 9.N1 TOP: Number KEY: Procedural Knowledge
ANS:
$(-2)^5 =$

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

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

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

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ANS:

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

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

ANS:

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

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

PROBLEM

30. ANS:

$$\frac{(15)^2 - (6)^2}{(9)^2 - 2(3)^2}$$

$$= \frac{225 - 36}{81 - 18}$$

$$= \frac{189}{63}$$

PTS: 1 DIF: Moderate REF: 2.3 Order of Operations with Powers
LOC: 9.N1 TOP: Number KEY: Problem-Solving Skills | Communication

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