Multiple Choice

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

Simplify the expression.

1. $(-8.6)^0$

Ⓐ -1 Ⓑ 0 Ⓒ -8.6 Ⓓ 1

2. $-(6)^{-1}$

Ⓐ 6 Ⓑ $-\frac{1}{-1^6}$ Ⓒ $\frac{1}{6}$ Ⓓ $-\frac{1}{6}$

3. $(4)^{-2}$

Ⓐ $-\frac{1}{16}$ Ⓑ 16 Ⓒ $\frac{1}{16}$ Ⓓ -8

4. $7a^{-5}b^3$

Ⓐ $7ab^{-15}$ Ⓑ $\frac{b^3}{7a^5}$ Ⓒ $\frac{7b^3}{a^5}$ Ⓓ $7a^5b^{-3}$

5. $\frac{12}{c^{-8}d^2}$

Ⓐ $\frac{12}{cd^{-6}}$ Ⓑ $\frac{96c}{d^2}$ Ⓒ $\frac{12}{c^8d^2}$ Ⓓ $\frac{12c^8}{d^2}$

6. $20 \cdot 5^{-2}$

Ⓐ 25 Ⓑ -500 Ⓒ $\frac{4}{5}$ Ⓓ -200

7. $2k^8 \cdot 3k^3$

Ⓐ $5k^{24}$ Ⓑ $5k^{11}$ Ⓒ $6k^{11}$ Ⓓ $6k^{24}$

8. $(t^{-2})^6$

Ⓐ t^{12} Ⓑ $\frac{x}{12}$ Ⓒ $\frac{1}{t^{12}}$ Ⓓ $\frac{1}{t^{64}}$

9. $(x^9)^0(x^7)^2$

Ⓐ x^{18} Ⓑ 1 Ⓒ x^{14} Ⓓ x^{126}

10. $(5k^2)^3$

Ⓐ $125k^6$ Ⓑ $125k^5$ Ⓒ $5k^6$ Ⓓ $5k^8$

11. $(3xy^3)^2(xy)^6$

Ⓐ $9x^8y^{12}$ Ⓑ $3x^8y^{12}$ Ⓒ $2x^3y^{12}$ Ⓓ $9x^8y^9$

12. $\frac{3^7}{3^5}$

Ⓐ 3^{35} Ⓑ 3^{12} Ⓒ $\frac{1}{3^9}$ Ⓓ 9

13. $\frac{x^{14}}{x^7}$

Ⓐ x^7 Ⓑ x^{98} Ⓒ $\frac{1}{x^7}$ Ⓓ x^{21}

14. Evaluate $\frac{1}{2^{-2}x^{-3}y^5}$ for $x = 2$ and $y = -4$.

Ⓐ 16 Ⓑ -4 Ⓒ $-\frac{1}{32}$ Ⓓ -16

15. Write $4 \cdot 10^{-3}$ as a decimal.

Ⓐ 0.4 Ⓑ 0.004 Ⓒ -120 Ⓓ $4{,}000$

16. Chase scored 14 points on Monday, and he doubled his score each day thereafter. How many points did he score on Thursday?

Ⓐ 224 points Ⓑ 112 points Ⓒ 56 points Ⓓ 42 points

17. Which number is NOT written in scientific notation?

Ⓐ 3×10^{-8} Ⓑ 6.7×10^3 Ⓒ 8.7×10^{-5} Ⓓ 25.67×10^{-2}

18. Which number is written in scientific notation?

Ⓐ 7.8×10^{-5} Ⓑ 3.4×100^2 Ⓒ 0.84×10^6 Ⓓ -5×10^{-12}

Complete the equation, by supplying the missing exponent.

19. $3^{\blacksquare} \cdot 3^{-6} = 3^2$

Ⓐ -8 Ⓑ -3 Ⓒ 8 Ⓓ 4

Short Answer: Show ALL work!!

Simplify the expression.

20. $\dfrac{m^{-6}n^{-3}}{m^{-13}n^{-1}}$

Answer: _____

21. $(-5g^5h^6)^2(g^4h^2)^4$

Answer: _____

22. $-4x^3 \cdot 2y^{-2} \cdot 5y^5 \cdot x^{-8}$

Answer: _____

23. Simplify. Show your work.

$(3m^{-1}n^{4})^{-2}(2m^{3}n^{-5})^{4}$

Asnwer: _____

Other

24. Explain why $(2g)^{4}$ is not in simplest form.

1) D

2) D

3) C

4) C

5) D

6) C

7) C

8 C

9) C

10) A

11) A

12) D

13) A

14) C

15) B

16) B

17) D

18) A

19) C

20. ANS:

$$\frac{m^7}{n^2}$$

21. ANS:

$$25g^{26}h^{20}$$

22. ANS:

$$-\frac{40y^3}{x^5}$$

23. ANS:

[4] $(3m^{-1}n^{4})^{-2}(2m^{3}n^{-5})^{4}$

$= 3^{-2}m^{2}n^{-8} \cdot 2^{4}m^{12}n^{-20}$

$= (3^{-2})(2^{4})m^{2}m^{12} \cdot n^{-8}n^{-20}$

$= (3^{-2})(2^{4})m^{14} \cdot n^{-28}$

$= \frac{16m^{14}}{9n^{28}}$

[3] one computational error
[2] incorrect application of a law of exponents OR two
[1] more than two computational errors

PTS: 1 DIF: L3 REF: 8-4 More
OBJ: 8-4.2 Raising a Product to a Power
STA: UT 2.2.7 | UT 1
KEY: raising a product to a power | exponents | multiplying
rubric-based question

OTHER

24. ANS:
Each term should be raised to the fourth power and simplified.

PTS: 1 DIF: L3 REF: 8-4 More Multiplication Properties of Exponents
OBJ: 8-4.2 Raising a Product to a Power NAT: ADP I.1.5 | ADP J.1.1
STA: UT 2.2.7 | UT 1
KEY: raising a product to a power | simplifying an exponential expression | exponential expression | writing in math | reasoning