7.1-7.4 Algebra Quiz Review

Directions: Simplify all answers. #1-16: Express using positive exponents. Write your final answer on the line provided. Show all your work on loose-leaf paper and staple it to this sheet.

* Helpful Hint: highlight all your negatives.

1. $4^6 * 4^3$ _____

2. $c^4 * c^4$ _____

3. $(a^2 b^6 c)(a^4 b^3 c)$ _____

4. $\dfrac{q^7}{q^4}$ _____

5. x^{-5} _____

6. $\dfrac{xy^6}{xy^7}$ _____

7. $(6^7)^4$ _____

8. $(2y^3)^4$ _____

9. $(2m^4 n)(-5m^3 n^2)$ _____

10. $\dfrac{12n^7}{3n^4}$ _____

11. $\left(\dfrac{7n^3}{14}\right)^0$ _____

12. $\left(\dfrac{2x^3}{4}\right)^3$ _____

13. $a^{\frac{1}{4}} b^0 \left(a^{\frac{5}{8}}\right)$ _____

14. $(4^2)^{\frac{1}{2}} (5x^2)^3$ _____

15. $\left(8x^{\frac{1}{3}}\right)^3 (3x^0)^{-2}$ _____

16. $\left(\dfrac{-36m^{\frac{5}{8}} n^5}{-6m^{\frac{1}{8}} n^3}\right)$ _____

#17-20: Express your final answer in scientific notation.

17. $(1.2 * 10^{-5})(1.2 * 10^{-3})$ _____

18. $(2.8 * 10^{-2})(9.1 * 10^6)$ _____

19. $\dfrac{(7.2 * 10^9)}{(4.8 * 10^4)}$ _____

20. $\dfrac{(1.25 * 10^4)}{(2.5 * 10^{-6})}$ _____

#21- 23: Evaluate each expression for $x = -2$, $y = 4$, and $z = 2$. Write your answer on the line provided.

21. z^{-3}

22. $6x^3z^0$

23. $(-y)^{-3}$

_____   _____   _____

#24- 25: Complete each equation by finding a value that belongs in the box. Write your answer on the line provided.

24. $8^3 \cdot 8^{-5} = 8^{\square}$

25. $a^{\frac{1}{3}} \cdot a^{\square} \cdot a^{\frac{1}{3}} = a$
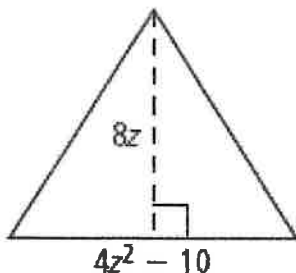
_____   _____

#26- 27: Simplify. Write each answer in scientific notation. Write your answer on the line provided.
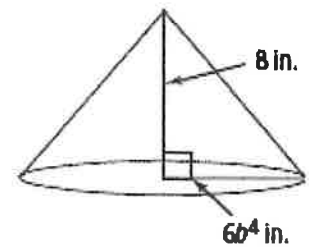
26. $(4 \times 10^3)^2$

27. $(2.5 \times 10^{10})^2$

_____   _____

#28: Find the area of the below figure.

28.

$8z$

$4z^2 - 10$

29. The volume of a circular cone can be determined by the formula $V = \frac{1}{3}\pi r^2 h$, where r is the radius of the base and h is the height of the cone. Find the volume of the cone shown at the right in terms of b. Use 3.14 for π. Write your answer on the line provided.

8 in.

$6b^4$ in.

_____

30. The area of a rectangle is $20x^6y^4$. The length of the rectangle is x^2y^3. What is the width of the rectangle? Write your answer on the line provided.

_____

7.1-7.4 Algebra Quiz Review

Directions: Simplify all answers. #1-16: Express using positive exponents. Write your final answer on the line provided. Show all your work on loose-leaf paper and staple it to this sheet.

All negatives are highlighted.

1. $4^6 * 4^3$ ___ 4^9 or $262,144$

2. $c^4 * c^4$ ___ c^8

3. $(a^2 b^6 c)(a^4 b^3 c)$ ___ $a^6 b^9 c^2$

4. $\dfrac{q^7}{q^4}$ ___ q^3

5. x^{-5} ___ $\dfrac{1}{x^5}$

6. $\dfrac{xy^6}{xy^7}$ ___ $\dfrac{1}{y}$

7. $(6^7)^4$ ___ 6^{28}

8. $(2y^3)^4$ ___ $2^4 y^{12}$ or $16y^{12}$

9. $(2m^4 n)(-5m^3 n^2)$ ___ $-10m^7 n^3$

10. $\dfrac{12n^7}{3n^4}$ ___ $4n^3$

11. $\left(\dfrac{7n^3}{14}\right)^0$ ___ 1

12. $\left(\dfrac{2x^3}{4}\right)^3$ ___ $\dfrac{2^3 x^9}{4^3} = \dfrac{8x^9}{104} = \dfrac{1x^9}{8}$

13. $a^{\frac{1}{4}} b^0 \left(a^{\frac{5}{8}}\right)$ ___ $a^{\frac{7}{8}}$

$a^{\frac{1}{4}+\frac{5}{8}} = a^{\frac{2}{8}+\frac{5}{8}} = a^{\frac{7}{8}}$

14. $(4^2)^{\frac{1}{2}}(5x^2)^3$ ___ $500x^6$

$(4^1)(5^3 x^6) = 4(125x^6)$

15. $\left(8x^{\frac{1}{3}}\right)^3 (3x^0)^{-2}$ ___ $\dfrac{512x}{9}$

$(8^3 x^1)(3^{-2} x^0) = \left(\dfrac{512x}{3^2}\right) = \dfrac{512x}{9}$

16. $\left(\dfrac{-36m^{\frac{5}{8}} n^5}{-6m^8 n^3}\right)$ ___ $6m^{\frac{1}{2}} n^2$

$6m^{\frac{4}{8}} n^2$

#17-20: Express your final answer in scientific notation.

17. $(1.2 * 10^{-5})(1.2 * 10^{-3})$ ___ 1.44×10^{-8}

1.44×10^{-8}

18. $(2.8 * 10^{-2})(9.1 * 10^6)$ ___ 2.548×10^5

25.48×10^4
2.548×10^5

19. $\dfrac{(7.2 * 10^9)}{(4.8 * 10^4)}$ ___ 1.5×10^5

1.5×10^5

20. $\dfrac{(1.25 * 10^4)}{(2.5 * 10^{-6})}$ ___ 5×10^9

0.5×10^{10}
5×10^9

#21- 23: Evaluate each expression for $x = -2$, $y = 4$, and $z = 2$. Write your answer on the line provided.

21. z^{-3}

$2^{-3} = \dfrac{1}{2^3} = \dfrac{1}{8}$

$\dfrac{1}{8}$

22. $6x^3z^0$

$6(-2^3) = 6 \cdot 8 = \overline{}48$

-48

23. $(-y)^{-3}$

$(-4)^{-3} = \dfrac{1}{-4^3} = \dfrac{1}{-64}$

$-\dfrac{1}{64}$

#24- 25: Complete each equation by finding a value that belongs in the box. Write your answer on the line provided.
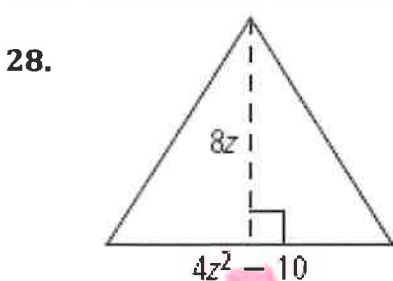
24. $8^3 \cdot 8^{-5} = 8^{\boxed{}}$ -2

-2

25. $a^{\frac{1}{3}} \cdot a^{\boxed{}} \cdot a^{\frac{1}{3}} = a$ $\dfrac{1}{3}$

$\dfrac{1}{3}$

#26- 27: Simplify. Write each answer in scientific notation. Write your answer on the line provided.

26. $(4 \times 10^3)^2$ $= 16 \times 10^6$
1.6×10^7

1.6×10^7

27. $(2.5 \times 10^{10})^2$ 6.25×10^{20}

6.25×10^{20}

#28: Find the area of the below figure.

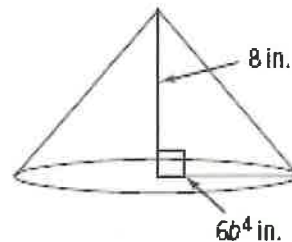**28.**

$8z$

$4z^2 - 10$

$\dfrac{1}{2}bh = \dfrac{1}{2}(4z^2 - 10)(8z)$
$(2z^2 - 5)(8z)$
$16z^3 - 40z$

$16z^3 - 40z \text{ unit}^2$

29. The volume of a circular cone can be determined by the formula $V = \dfrac{1}{3}\pi r^2 h$, where r is the radius of the base and h is the height of the cone. Find the volume of the cone shown at the right in terms of b. Use 3.14 for π. Write your answer on the line provided.

$\dfrac{1}{3}(3.14)(6b^4)^2(8)$
$30144 b^8 \text{ cubic units}$

8 in.

$6b^4$ in.

$301.44 b^8 \text{ in}^3$

30. The area of a rectangle is $20x^6y^4$. The length of the rectangle is x^2y^3. What is the width of the rectangle? Write your answer on the line provided.

$A = \ell w$
$20x^6y^4 = (x^2y^3)(\ell)$
$\dfrac{20x^6y^4}{x^2y^3}$
$20x^4y \text{ units}$

$20x^4y \text{ units}$