

NAME _____

DATE _____

Unit 8 Practice Test

You will be required to complete a short thatquiz as part of you test grade. It will consist of 10 questions. You will record your grade on the test. There will be both a technology portion and non-technology portion of this test.

Simplify the following as far as they can go.

1. $2^3 \cdot 2^4 = 2^7 = 128$

2. $w^x \cdot w^y = w^{x+y}$

3. $(x^2)(x^{m+1}) = x^{m+3}$

4. $(2x^4)(4x^3y^2) = 8x^7y^2$

5. $(-2x^r z)(-2y^2 z^n)(x^r y^3) = 4x^{2r} y^5 z^{n+1}$

The area, A , of a triangle is given by $A = \frac{1}{2}bh$, where b is the base and h is the height.

Find the area of the triangle given the values of b and h .

6. $b = 5x, h = 2x$ $A = \frac{1}{2}(5x)(2x) = 5x^2$

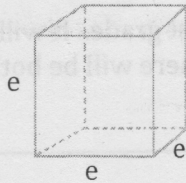
7. $h = 12a^3, b = 10a^2$ $A = \frac{1}{2}(12a^3)(10a^2)$
 $= \frac{1}{2}(120a^5) = 60a^5$

Simplify the following as far as they can go.

8. $(8c^5)^2 = 64c^{10}$

9. $(4h^3)^2(-2g^3h)^3 = 16h^6(-8g^9h^3) = -128g^9h^9$

Find the volume of the cube for each edge length, e .



10. $e = 5y^4$ $(5y^4)^3 = 125y^{12}$

11. $e = (2x^3y^5)^3$ $V = 8x^9y^{15}$

Simplify as far as possible.

12. $\frac{x^{20}}{x^5} = x^{15}$

13. $\frac{(3x^2)^2(2x^3)}{6x^5} = \frac{18x^7}{6x^5} = 3x^2$

14. $\frac{(2x^5)}{(350y^2)^0} = 2x^5$

15. $\frac{8p^3q^4r^{-1}}{2p^4q^3r^{-5}} = \frac{48r^4}{p}$

Plot the following points on *Geogebra* and find the exponential equation which best fits the points. Use "fitgrowth<list of points>" to help. Use that exponential equation to answer the questions.

X	-3	-2	-1	0	1	2	3
Y	.015625	.0625	.25	1	4	16	64

16. The exponential equation which fits these points is $f(x) = 4^x$

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Answer the following questions using this equation.

17. What would the value of "y" be if $x=5$? 102418. What value of x would give you a y -value of 1,048,576? 10

Tell whether the function represents exponential growth or decay.

19. $y = 2^x$ growth20. $y = 3 \cdot \left(\frac{3}{4}\right)^x$ decay21. $y = .5 \cdot (6)^x$ growth

Evaluate the following. Express each result in scientific notation.

22. $\frac{4 \times 10^5}{2 \times 10^3}$ 2×10^2

23. $\frac{1.4 \times 10^8}{2 \times 10^6}$ 7.0×10^1

24. $(3 \times 10^3)(4 \times 10^{-5})$ 12×10^{-2} 1.2×10^{-1}
 $(1.2 \times 10^1) \times 10^{-2}$

25. The speed of light is 3×10^8 meters/second. If the sun is 1.5×10^{11} meters from earth, how many seconds does it take light to reach the earth. Express your answer in scientific notation.

$$\frac{1.5 \times 10^{11}}{3 \times 10^8} = 5 \times 10^2$$