

Unit 8 Test- Retake

1) Explain what happens when we take 2^8

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 256$

2) If two expressions have the same factor or base, what happens to the exponents when the expressions are multiplied? For instance $2^3 \cdot 2^1$

The exponents are added $- 2^3$

3) Explain why you can subtract exponents when you are dividing two things with the same base. For instance $\frac{2^5}{2^2}$

Because it would come out as the same number.

4) Anything to the zero power is 1. Show why this happens by simplifying the following problem: $\frac{2^5}{2^5}$

5) Can $\frac{2^3}{2^6}$ represent 2^{-1} ? Why or why not?

Yes, because it's the same as 2^{-3} it would be 2^{-1} .

Simplify. Your answer should contain only positive exponents.

6) $6m^2 \cdot 4m^2 = 24m^4$

7) $6a^2b^2 \cdot 6a^2b^2 = 36a^4b^4$

8) $(4r^3)^2 = 16r^6$

9) $\frac{4b^4}{4b^2} = b^2$

10) $(2x^3 - 4x^4)^2 = 4x^6 - 16x^{12} + 16x^{14}$

11) $\frac{8a^4b^4}{2ab^2} = 4a^3b^2$

12) $\left(\frac{4a}{3a^4}\right)^2 = \frac{16}{9a^6}$

13) $\frac{2p^4 \cdot 4p^{20}}{p^{24}} = \frac{8p^2}{p^0} = 8p^2$

14) $\frac{3x^3y^4}{3y^1} = x^3y^3$

15) $(3u^4v^4)^2 = 9u^8v^8$

Algebra I
Unit 8 Test- Retake

Name [REDACTED] ID: 1

Date 3/13/13 Period 9

1) Explain what happens when we take 2^8 .

+1 $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 256$

$8^2 \times 2 = 64 \times 2 = 128$
 $40 \times 2 = 80$
 $\frac{51}{80}$

2) If two expressions have the same factor or base, what happens to the exponents when the expressions are multiplied? For instance $2^2 \cdot 2^1$

+1 The exponents are added - 2^3

3) Explain why you can subtract exponents when you are dividing two things with the same base. For instance $\frac{2^3}{2^2}$

+1 Because it would come out as the same number.

4) Anything to the zero power is 1. Show why this happens by simplifying the following problem: $\frac{x^5}{x^5}$

+1/2 5) Can $\frac{2^5}{2^6}$ represent 2^{-1} ? Why or why not?

+1 yes, because it's the same as 2^{-1} . $9-6=3$, so it would be 2^{-1} . - good!

Simplify. Your answer should contain only positive exponents.

$\frac{45}{5}$

+2 6) $6m^2 \cdot 4m^2 = 24m^4$

+3 7) $6a^2b^2 \cdot 6a^3b^3 = 36a^5b^5$

8) $(4r^3)^2 = 16r^6$

$4b^4$

- 16) Haley buys a car for \$10,500. Each year the price of the car depreciates by 10%. Write an exponential decay model to represent the situation. How much will the truck be in 10 years? Recall the exponential growth or decay model. Hint: Exponential Growth is $y = a(1+r)^t$

Exponential model $10,500(1-0.10)^t$

How much will the truck be in 10 years? (round to nearest dollar) 27234.3

- 17) Consider the equation to answer the following questions.

$$y = \textcircled{3000} \cdot 1.09^t$$

a) Circle the initial amount

b) Does this model represent exponential growth or decay? growth

c) What is the growth/decay rate?

growth - 0.09 or 9%

$\frac{7}{8}$