Honors 1

Chapter 7 PRACTICE TEST

Name:_____

Simplify the expression in #1-6. Don't leave an answer with a negative exponent.

1. $(3x^4)(-5x^6)$

$-15x^{10}$

2. $(-3x^4)^5$

$(-3)^5 x^{20}$

$-243x^{20}$

3. $\left(\frac{4x^3y^6}{3x^5y}\right)^3$

$\frac{4^3x^9y^{18}}{3^3x^{15}y^3} = \frac{64y^{15}}{27x^6}$

4. $\frac{42x^2y^{-12}}{-16x^{-5}y^{-3}z^2}$

$\frac{-21x^7y^3}{8y^{12}z^2} = \frac{-21x^7}{8y^9z^2}$

5. $\left(\frac{a^4c^{-7}}{d^5}\right)\left(\frac{5a^{-12}c^{17}}{d^{-2}}\right)^0$

$\frac{a^4}{c^7d^5} \cdot 1 = \frac{a^4}{c^7d^5}$

6. $\left(\frac{5x^2}{2y}\right)^3 \cdot \left(\frac{y^3}{2x^{-1}}\right)^{-2}$

$\frac{125x^6}{8y^3} \cdot \frac{y^{-6}}{2^{-2}x^2} = \frac{125x^6}{8y^3} \cdot \frac{4}{y^6x^2} = \frac{125x^4}{2y^9}$

7. Simplify.

$\sqrt{64x^5} = 8x^{5/2}$

8. Write with radicals.

$5x^{\frac{1}{3}}$

$5 \cdot \sqrt[3]{x}$

9. Compute.

$16^{\frac{3}{2}}$

$(16^{1/2})^3 = 4^3 = 64$

10. Convert 1.255×10^6 to standard form.

1,255,000

11. Convert 0.0003402 to scientific notation.

3.402×10^{-4}

12. Solve $9^{x-3} = 81$

$9^{x-3} = 9^2$ so

$x - 3 = 2 \Rightarrow x = 5$

13. What is the area of a triangle whose height is $14x^2y$ and base is $3x^5y^3$?

$A = \frac{1}{2}(14x^2y)(3x^5y^3)$

$A = \frac{1}{2}(42x^7y^4) = 21x^7y^4$

14. For every increase of 1 on the Richter scale an earthquake releases approximately 31 *times* as much energy. How much more energy does an earthquake measuring 8 release than one measuring 5?

$31^3 = 29{,}791$ times as much energy

15. Evaluate the following and write your answer in scientific notation.

$$\frac{5.8 \times 10^{16}}{(2.47 \times 10^3)(3 \times 10^{-2})}$$

$.783 \times 10^{15}$

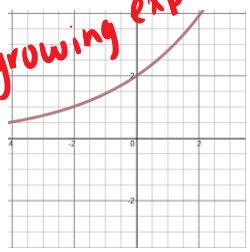
7.83×10^{14}

Match the function with its graph (yes, not every graph will be used).

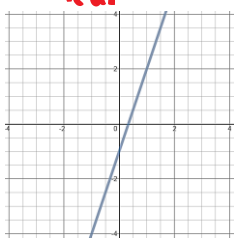
16. B $f(x) = 3x - 1$

17. A $f(x) = 2(1.4)^x$

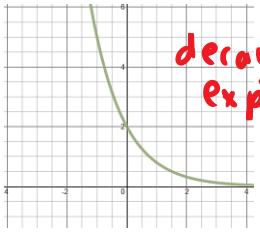
A. growing exponential



B. linear



C. decaying exponential



Write a rule for the function based on the table.

18.

x	-2	-1	0	1	2
y	.125	.25	.5	1	2

$y = 0.5 \cdot (2)^x$

19.

x	-2	-1	0	1	2
y	256	64	16	4	1

$y = 16 \cdot \left(\frac{1}{4}\right)^x$

Use this information:
You bought a pair of autographed Michael Jordan shoes for $75 in 2008. The shoes appreciate (increases value) at a rate of 20% annually.

20. Write an exponential growth equation that represents the situation.

$y = 75(1.2)^x$ x = yrs after 2008

21. Find the value of the shoes currently.

$y = 75(1.2)^8 = \$322.49$

I did it for the year 2016.

Use this information:
A block of Mathonium™ decays 12% per day. You started with 45kg of Mathonium™.

22. Write an equation that represents the amount of Mathonium™ remaining after *d* days.

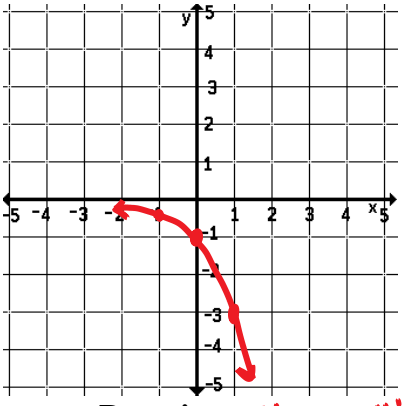
$y = 45(0.88)^x$ x = days

23. Find the mass of the Mathonium™ after 2 weeks.

$y = 45(0.88)^{14} = 7.52$ Kg

Graph the functions then state the domain and range

24. $y = -3^x$ $y = -1 \cdot (3)^x$

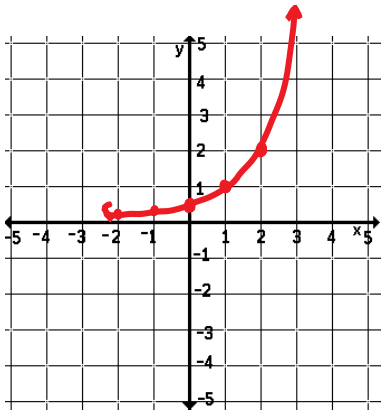


x	y
-2	-1/9
-1	-1/3
0	-1
1	-3
2	-9

Domain: all real #'s

Range: $y < 0$

25. $y = \frac{1}{2}(2)^x$



x	y
-2	1/8
-1	1/4
0	1/2
1	1
2	2

Domain: all real #'s

Range: $y > 0$