

MATH 1 UNIT 5 REVIEW

Name Key

#1-6: Simplify each expression.

$x^0 = 1$      $x^{-n} = \frac{1}{x^n}$      $\frac{1}{x^{-n}} = \frac{x^n}{1}$

1)  $(-5.4)^0$   
 $\boxed{1}$

2)  $8^{-2}$   
 $\frac{1}{8^2} = \boxed{\frac{1}{64}}$

3)  $\frac{1}{2^{-4}}$   
 $\frac{2^4}{1} = \boxed{16}$

4)  $p^0$   
 $\boxed{1}$

5)  $4h^{-4}k^2$   
 $\frac{4k^2}{h^4}$

6)  $\frac{9}{w^{-2}y^8}$   
 $\frac{9w^2}{y^8}$

#7-8: Find the value of each expression for  $x = (3)$  and  $y = (-2)$

7)  $7x^{-2}y^4$   $\wedge$  for exponent  
 $7(3)^{-2}(-2)^4$   
 $= 12.\bar{4} = \boxed{\frac{112}{9}}$   
 MATH ENTER ENTER for decimal to fraction

8)  $\frac{y^{-3}}{x^{-2}}$  ALPHA Y= ENTER for fraction  
 $\frac{(-2)^{-3}}{(3)^{-2}} = -1.125 = \boxed{-\frac{9}{8}}$

#9-11: Decide if the function is linear or exponential. common ratio (multiply/divide)

9) common difference (add/subtract) (Circle one)

Linear or Exponential

x	1	2	3	4
y	5	12	19	26

Common difference  
 Linear or Exponential

10)

x	1	2	3	4
y	-10	-20	-40	-80

Common ratio  
 \*2 \*2 \*2

11)

x	1	2	3	4
y	3	7	11	15

+4      +4      +4

Linear or Exponential

Common difference

Write the equation that represents the situation and use it to answer the questions.

initial value  $\downarrow$   $a$   
 growth factor  $1 \pm \%$  as decimal  $\downarrow$   $b$   
 $y = a \cdot b^x$   
time  $x$

Principal (initial)  $\downarrow$   $P$   
 interest rate (as decimal)  $\%$   $\div 100 =$  decimal  $\downarrow$   $r$   
 $A = P \left( 1 + \frac{r}{n} \right)^{nt}$   
# of years  $t$   
# times compounded a year  $n$

12) Suppose the population of raccoons in a state is 1,600 and is growing by 3% each year. What is the population after 5 years?

$1 + 3 \div 100 = 1.03$

$y = a \cdot b^x$

Equation:  $y = (1600)(1 + 0.03)^5$

Answer:  $1854.84 = \boxed{1854 \text{ raccoons}}$

13) A truck costs \$13,500 and declines in value by 5% each year. How much will the truck be worth after 4 years?

$y = a \cdot b^x$

Equation:  $y = (13500)(1 - 0.05)^4$

Answer:  $10995.83438 = \boxed{\$10975.83}$

14) You have \$1,600 in a bank account that earns 3.5% interest compounded annually. What is the balance after 5 years?

$A = P \left( 1 + \frac{r}{n} \right)^{nt}$

Equation:  $A = (1600) \left( 1 + \frac{0.035}{1} \right)^{1 \cdot 5}$

Answer:  $1900.298089 = \boxed{\$1900.30}$

15) You have \$500 in a bank account that earns 8% compounded monthly. What is the balance after 20 years?

$12 \text{ times per year}$   
 $n$

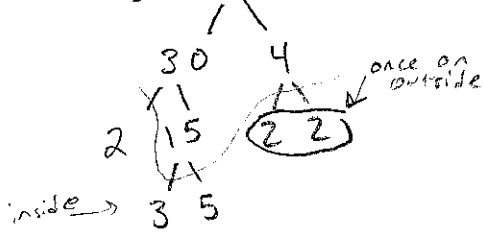
$A = P \left( 1 + \frac{r}{n} \right)^{nt}$

Equation:  $A = (500) \left( 1 + \frac{0.08}{12} \right)^{12 \cdot 20}$

Answer:  $2463.401385 = \boxed{\$2463.40}$

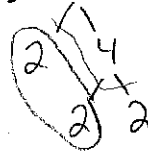
**Simplify each radical expression.**

16)  $\sqrt{120}$



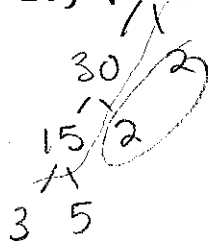
$$2\sqrt{2 \cdot 3 \cdot 5} = \boxed{2\sqrt{30}}$$

17)  $\sqrt{8k^6}$   $h h h h h h$



$$\boxed{2k^3\sqrt{2}}$$

18)  $\sqrt{60g^3h^6}$   $g g h h h h h h$

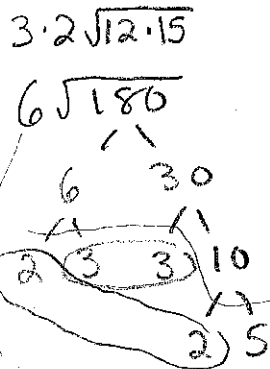


$$2gh^3\sqrt{3 \cdot 5}$$

$$\boxed{2gh^3\sqrt{15}}$$

19)  $3\sqrt{12} \cdot 2\sqrt{15}$

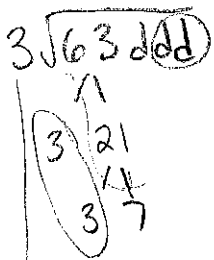
multiply  
in \* in  
out \* out



$$6 \cdot 2 \cdot 3\sqrt{5} = \boxed{36\sqrt{5}}$$

20)  $\sqrt{7d^2} \cdot 3\sqrt{9d}$

$$3\sqrt{7 \cdot 9 d d d}$$



$$3 \cdot 3d\sqrt{7d} = \boxed{9d\sqrt{7d}}$$

