

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

+7 +7 +7
 Linear or **Exponential**
Common difference

10)

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

*2 *2 *2
 Linear or **Exponential**
Common ratio

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: $1854.84 = 1854$ 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: $10995.83438 = 10995.83$

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: $1900.298089 = 1900.30$

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

12 times per year \downarrow n

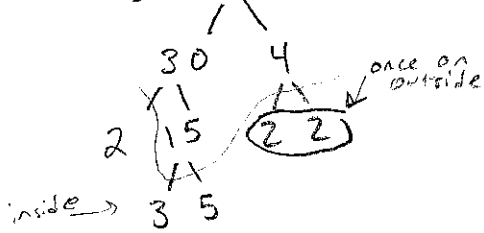
$A = P \left(1 + \frac{r}{n} \right)^{nt}$

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

Answer: $2463.401385 = 2463.40$

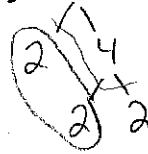
Simplify each radical expression.

16) $\sqrt{120}$



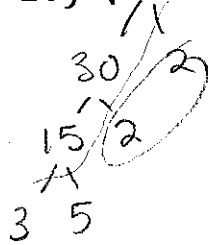
$$2\sqrt{2 \cdot 3 \cdot 5} = \boxed{2\sqrt{30}}$$

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*

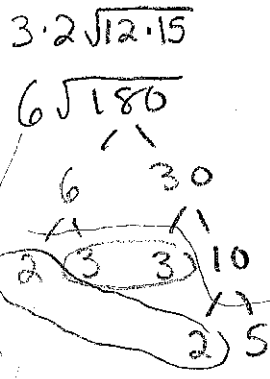


$$2gh^3\sqrt{3 \cdot 5}$$

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

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

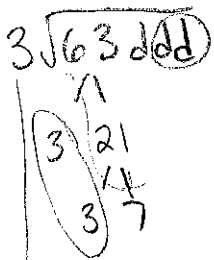
multiply
in * in
out * out



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

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

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



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

