Algebra 2

6.1-6.3 Review

Rewrite each equation in exponential form.

1)
$$\log_{7} 49 = 2$$

3)
$$\log_{19} 361 = 2$$

Rewrite each equation in logarithmic form.

5)
$$13^2 = 169$$

7)
$$16^{\frac{1}{2}} = 4$$
 $\log_{16} 4 = \frac{1}{2}$

Evaluate each expression.

9)
$$\log_7 \frac{1}{49}$$
 = $\frac{1}{49}$



2)
$$\log_{18} 324 = 2$$

4)
$$\log_9 \frac{1}{81} = -2$$

$$9^{-2} = \frac{1}{81}$$

6)
$$14^{-2} = \frac{1}{196}$$

6)
$$14^{-2} = \frac{1}{196}$$
 $|09| + |96| = -2$

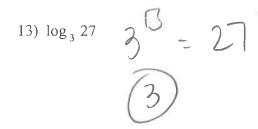
8)
$$17^{-2} = \frac{1}{289}$$

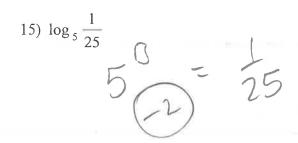
8)
$$17^{-2} = \frac{1}{289}$$
 | $0917 = \frac{1}{289} = -2$

10) log₃ 81









17) Does the following expression represent exponential growth or decay?

$$f(x) = 0.25 \cdot (1.00)^{x}$$
 $y = 0.25 \cdot (1.00)^{x}$
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19) Find the total amount if \$4000 is invested for 12 years at 4.73% interest, compounded quarterly.

quarterly.
$$y = a(1+\frac{r}{n})$$
 $y = 4000(1+.0473)$

21) A certain strain of bacteria triples every 20 minutes. If the culture started with 10 cells, how many cells will there be after 3 hours?

$$y = 10(3)^9$$
 $t = 9$

23) You invest \$15,000 at 4.5% each year, how much will your investment be worth after 10 years?

$$y = 15000 (1 + .045)^{10}$$

 $y = 18 23,294.54$

- 16) $\log_2 \frac{1}{8}$ $2 = \frac{1}{8} (-3)$
- 18) Does the following expression represent exponential growth or decay?

20) Find the total amount if \$3500 is invested for 15 years at 7.25% interest compounded daily.

$$y = 3500 \left(1 + \frac{0725}{365}\right)^{365} = 5475$$

$$y = $10,382.85$$

22) A certain strain of bacteria triples every 45 minutes. How much bacteria do you have after 3 hours if your starting amount is 10 mg?

after 3 hours if your starting amount is 10 mg?

$$y = 10(3)$$
 $y = a(b)$

Authydouble triple ct.

24) You purchased a car 7 years ago for \$18,000. If it depreciates at a rate of 6.5% each year, how much is it worth now?

$$y = a(1-r)^{t}$$

 $y = 18,000(1-.005)^{7}$
 $y = 18,000(1-.005)^{7}$
 $y = 411,244.85$

25) You invest \$9,000 at 4% each year, how much will your investment be worth after 20 years?

$$y = 9000(1+.045)^{20}$$

 $y = $21,705.43$

27) You invest \$15,750 at 6.3% compounded continuously, how much will your investment be worth after 15 years?

Simplify.

$$29) \log_8 64^{3x}$$

31)
$$\log_3 81^{-2x}$$

 $\log_3 (3^4)^{-2x}$
 $\log_3 3^{-8x}$
 $= -8x$

35)
$$(7e^{4x})^3$$
 7^3e^{12x}
 $343e^{12x}$

26) You bought a computer for \$2500 that depreciates at a rate of 1.5% each year, how much will your computer be worth in 5

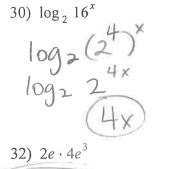
$$y = 2500 (1 - .015)^5$$

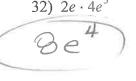
 $y = $2,318.04$

28) You invest \$2850 at 3.25% compounded continuously, how much will your investment be worth after 18 years?

$$y = Pe^{rt}$$

 $y = 2850e$
 $y = 45, 115.72$





34)
$$(12e^{8})^{2}$$
 $(12e^{15})^{2}$
36) $\frac{12e^{15}}{4e^{3}}$ 3e