

Warm Up: Pre-Calc

10/10 and 10/11

1)  $\log_5 \left( \frac{b}{a^5} \right)^4$  Expand

2)  $4\log_3 x - 8\log_3 y$  Condense

3)  $\log_3 62$  Find the value

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Solutions to P.W.:

17) 2.453

21) 2.059

25) 0.690

18) 1.153

22) 2.337

26) 4.858

19) 0

23) 2.485

20) 3.757

24) 0.374

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**W.A.L.T.:**

Use a property of logs to solve exponential equations.

**W.A.S.I.:**

We can use the power property, ability to solve equations and understanding of logs to find the solution to exponential equations.

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**Notes!!! Solving Exponentials with Logs**

Example:

$$3^x = 32$$

$$\frac{3x}{3} = \frac{9}{3}$$

$\log_3 3^x = \log_3 32$   
 $x \log_3 3 = \log_3 32$   
 $x = \log_3 32$   
 $x = 3.155$

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## In Class Work:

$$1) 6^x = 12 \quad x = \log_6 12 = 1.387$$

$$2) 5^x + 4 = 610 \quad x = \log_5 606 =$$

$$3) e^x = 91 \quad x = \ln 91 \quad x = \log_e 91$$

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## Notes!!! Solving Exponentials with Logs

Example:

$$4^{x-2} = 35.6$$

$$\log_4 4^{x-2} = \log_4 35.6$$

$$(x-2) \log_4 4 = \log_4 35.6$$

$$x-2 = \log_4 35.6$$

$$+2 \qquad +2$$

$$x = \log_4 35.6 + 2$$

$$= 4.577$$

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## In Class Work:

1)  $12^{x+3} = 240$

$x = -0.794$

2)  $4.2^{x+4} = 5.7$

$x = -2.787$

3)  $e^{2x-4} = 148$

$x = 4.499$

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**Notes!!!** Solving Exponentials with Logs

Example:

$$-4 \cdot 2^{2x-3} = 100$$

$$\frac{-4}{-4} \quad \frac{100}{-4}$$
$$2^{2x-3} = -25$$

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**In Class Work:**

Worksheet: Solving Exponents using Logs

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Today's Activities:

- Notes

P.W. for tonight:

- Worksheet: Solving Exponents using Logs

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