

**MATH 12 – QUIZ CH 2  
EXPONENTS AND LOGS**

Name: Kew

A GRAPHING OR SCIENTIFIC CALCULATOR IS REQUIRED  
GIVE ALL ANSWERS CORRECTLY ROUNDED TO 3 DECIMAL PLACES

**PART A: EVALUATE EACH EXPRESSION TO 3 DECIMAL PLACES**

1. $\frac{\log \pi}{2\sqrt{3}}$  $.1435$  $= .144$	2. $\log 3.7^2$  $= 1.1364$  $= 1.136$
3. $3(\log^2(421))$  $(\log 421)^2 \times 3$  $20.661$	4. $(\sqrt[3]{6421})^2$  $33.346$
5. $(-6.74)^{\frac{1}{3}}$  $(-1.889)$	6. $(\pi\sqrt{20 - \frac{3.7}{1.3}})^2$  $= 125.518$
7. $\log_7 14 = \frac{\log 14}{\log 7} = 1.356$	8. $1500\left(1 + \frac{0.05}{12}\right)^{36} = 1742.208$

**PART B: SOLVE. GIVE ALL ANSWERS ACCURATE TO 3 DECIMAL PLACES**

9. $2^x = 7$  $x \log 2 = \log 7$  $x = \frac{\log 7}{\log 2} = 2.807$	10. $50(1.1)^n = 175$  $n \log 1.1 = \log \frac{175}{50}$  $n = \frac{\log 3.5}{\log 1.1} = 13.144$
11. $4(3)^{(x-2)} + 1 = 10$  $3^{(x-2)} = \frac{9}{4}$  $(x-2) \log 3 = \log 2.25$  $x \log 3 - 2 \log 3 = \log 2.25$	12. $\log_5(x+2) = \frac{2}{3}$  $x+2 = 5^{\frac{2}{3}}$  $x = 5^{\frac{2}{3}} - 2$

13.  $\log_x 7 = 1.2$

$(7)^{\frac{1}{x}} = (x^{1.2})^{\frac{1}{x}}$   
  
 $x = 7^{\frac{1}{1.2}}$

$x = 5.061$

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14. Under favourable conditions, the population of moles in a field can increase by 60% every 6 weeks. Starting with a population of 50 moles, how many weeks would it take to build a population of 200 moles? Show your equation and steps to solve. Answer to the nearest 0.1 week.

$200 = 50(1.6)^{\frac{x}{6}}$  ✓

$4 = 1.6^{\frac{x}{6}}$

$\log 4 = \frac{x}{6} \log 1.6$

$x = \frac{6 \log 4}{\log 1.6} = 17.7 \text{ weeks}$  ✓

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