

Directions: Solve the equation. Give the EXACT and APPROXIMATE (to nearest thousandth) answers.

1) $4^{2x} = 92$

2) $65 = 5^{2x+1}$

3) $7^{x+2} - 10 = 100$

4) $4(10^{x+10}) - 20 = 80$

5) $45(2^{2x}) = 2^{4x}$

6) $3(6^{x+1}) = 30(6^{2x+10})$

Compounding Interest (continuous compounding)	Compounding Interest (periodic compounding)	% increase/decrease per unit of time
$A = Pe^{rt}$	$A = P \left(1 + \frac{r}{n}\right)^{nt}$	$f(x) = ab^x$
7) Mr. Brust invests \$450 at 6% compounded monthly. How long will it take him to have \$1000 in his account?	8) Mr. Kelly invests \$450 at 6% compounded continuously. How many years will it take him to have \$1000?	
9) The bee population is slowly dying in Kaiserslautern. Its population is decreasing by half every 6 months. If there are 10,000 bees right now, how long before there are only 500 bees left?	10) Mr. Sullivan spotted 15 mosquitos. He quickly realized the population was doubling every 3 days. How long until there are 1000 mosquitos?	

8.4 Solving Exponential Equations

Corrective Assignment Answers

1) $x = \frac{\log_4 92}{2}$ $x \approx 1.631$	2) $x = \frac{\log_5 65-1}{2}$ $x \approx 0.797$	3) $x = \log_7 110 - 2$ $x \approx 0.416$
4) $x = \log 25 - 10$ $x \approx 8.602$	5) $x = \frac{\log_2 45}{2}$ $x \approx 2.746$	6) $x = -\log_6 10 - 9$ $x \approx -10.285$
7) 13.34 years	8) 13.31 years	9) 25.93 months
10) 18.18 days		