

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

1)  $7^{3x} = 692$

2)  $21 = 2^{2x-9}$

3)  $3^{x-5} + 17 = 434$

4)  $6(e^{x+9}) + 12 = 84$

5)  $12(3^x) = 3^{5x}$

6)  $9(8^{2x+11}) = 81(8^{x+4})$

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 \$75 and expects a 13% increase in his account each year. How long till he has \$1000?	8) Mr. Kelly invests \$75 at 10% compounded continuously. How many years will it take him to have \$1000?	
9) The bee population is really buzzing in Sigonella! Brust thinks there are about 100 bees around the school. He figures that the population triples every 6 days. How long till there are 10,000 bees?	10) Mr. Sullivan is tired of mosquitos at his house. One night his sits and counts. He figures out that there are about 250 mosquitos around. The population shrinks in half every 10 days though. How long until there are only 5 mosquitos left?	

## 8.4 Solving Exponential Equations

## Corrective Assignment Answers

1) $x = \frac{\log_7 692}{3}$ $x \approx 1.120$	2) $x = \frac{\log_2 21+9}{2}$ $x \approx 6.696$	3) $x = \log_3 417 + 5$ $x \approx 10.492$
4) $x = \ln 12 - 9$ $x \approx -6.515$	5) $x = \frac{\log_3 12}{4}$ $x \approx 0.565$	6) $x = \log_8 9 - 7$ $x \approx -5.943$
7) 21.19 years	8) 25.9 years	9) 25.15 days
		10) 56.44 days