

Section 7.3 Extra Practice

- Write each expression as a single power of 2.
 - 0.5
 - $\sqrt{32}$
 - 512
 - $\left(\frac{1}{16}\right)^5$
- Rewrite the expressions in each pair so that they have the same base.
 - 25 and $\frac{1}{125}$
 - 27 and $\sqrt[3]{81}$
 - 0.25 and 8
 - $\sqrt[3]{6}$ and $36\sqrt{6}$
- Solve. Check your answer using substitution.
 - $3^{4x}(3) = 27^{2x}$
 - $\left(\frac{4}{7}\right)^{5x} = \left(\frac{64}{343}\right)^{2x-1}$
 - $\left(\frac{1}{9}\right)^x = \frac{27^x}{9^{2x-1}}$
 - $2^{x-1} = (128^x)(2^x)$
- Solve. Check your answer using graphing technology.
 - $16^{x+1} = 8^{1-x}$
 - $27^{x+2} = \left(\frac{1}{3}\right)^{3-6x}$
 - $8^{x-1} = \left(\frac{1}{16}\right)^{5-x}$
 - $\left(\frac{1}{6}\right)^{3x-2} = 36^{x+4}$
- Solve for t graphically. Round your answers to two decimal places.
 - $800 = 500(1.03)^t$
 - $5 = 200\left(\frac{1}{2}\right)^{3t}$
 - $3^t = 2^{t+4}$
 - $5^{-t} = 2^{1-t}$
- Write an exponential expression that will determine the value, V , of the investment at any given time, t , in years.
 - \$3000 is invested at 5.2% per year compounded semi-annually
 - \$2500 is invested at 4% per year compounded quarterly
 - \$8000 is invested at 6% per year compounded monthly
 - \$6300 is invested at 2.1% per year
- If \$5000 is invested at 7.2% per year compounded monthly, how long will it take for the investment to increase to \$8000? Give your answer in years to two decimal places.
- Determine how much an investment of \$3500 will be worth after 4 years if it is compounded semi-annually at a rate of 5% per year.
 - How long will it take for the investment to double in value? Give your answer in years to two decimal places.
- Malcolm bought a new car for \$24 000. Every year it will depreciate in value by 8%.
 - How much will the car be worth after 5 years?
 - How long will it take for the car to be worth a quarter of its original value? Give your answer to two decimal places.
- Jamie borrows \$6000 from the bank at a rate of 8% per year compounded monthly. How much would he owe at the end of one month, if he does not make his first payment?
 - Steven borrows \$6000 on his credit card at the rate of 19.99% per year compounded monthly. How much would he owe at the end of one month, if he does not make his first payment?

