

1. Write as a single power. Express answers with positive exponents. DO NOT EVALUATE.

(a) $4^3 \times 4 \times 4^2$

(b) $5(5^3)$

(c) $\frac{(-4)^6(-4)^3}{((-4)^9)^2}$

(d) $\frac{3^4}{(3^2)^3}$

(e) $\frac{(20^{-1})^8}{20^2 20^6}$

(f) $\left(\frac{1}{9}\right)^5 \left(\frac{1}{9}\right)^{-3}$

2. Evaluate WITHOUT using a calculator.

(a) $256^{\frac{-5}{4}}$

(b) $\left(-\frac{1}{2}\right)^3 + 2^{-3}$

(c) $4^{-1} + 4^0 + 4^2$

(d) $16^{\frac{3}{2}}$

(e) $\left(\frac{27}{64}\right)^{\frac{-1}{3}}$

(f) $\sqrt[5]{-32}$

3. Use your calculator to evaluate each expression. Express answers to two decimals.

(a) $256^{0.66}$

(b) $15^{\frac{-3}{2}}$

(c) $\sqrt[11]{3.7}$

(d) $\sqrt[4]{-99}$

4. Complete the table.

Function	Exponential Growth or Decay?	Initial Value (y-intercept)	Growth/Decay rate
$P(n) = 200(1 - 0.032)^n$			
$A(x) = (2)^x$			
$Q(x) = 0.85(0.77)^x$			

5. Calculate finite differences to classify each function as linear, quadratic, exponential or none of those.

(a)

x	y
-4	47
-3	26
-2	11
-1	2
0	-1

(b)

x	y
-1	0.125
0	0.25
1	2
2	8
3	32

6. Greg invests \$750 in a bond that pays 4.3% per year.
- Calculate, to the nearest penny, what Greg's total amount will be after 4 years. (Show your work)
 - How much money did \$750 earn in four years?
 - If Greg is planning to enter University in 2018, would his money have doubled by then? (Show your work).
7. A police diver is searching a harbour for stolen goods. The equation that models the intensity of light per metre of depth is $I(n) = 100(0.92)^n$.
- At what rate does the light diminish per metre?
 - Determine the amount of sunlight the diver will have at a depth of 18 m, relative to the intensity at the surface.
8. Ryan purchases a used vehicle for \$11,899. If the vehicle depreciates at a rate of 13% yearly, what will the car be worth, to the nearest dollar, in ten years? Show your work.
9. After being filled, a basketball loses 3.2% of its air every day. The initial amount of air in the ball was 840 cm^3
- Write an equation to model this situation.
 - Determine the volume after 4 days.
 - Will this model be valid after 6 weeks? Explain.

CHAPTER 8: Financial Problems Involving Exponential Functions EXTRA QUESTIONS – Chapter 8p. 526 #9,10

10. Kurtis earned \$279.40 in simple interest by investing a principal of \$400 in a Treasury bill. If the interest rate was $3.35\%/a$, for how many years did he have his investment?
11. Complete the table (correct to 2 decimal places).
12. Calculate the amount you would end up with if you invested \$2500 at $4\frac{1}{2}\%/a$ compounded semi-annually for 8 years?
13. Johnny borrowed money from a friend. The interest rate was $5.75\%/a$ compounded monthly. If Johnny will repay \$5667 over the next 6 years. How much money did Johnny borrow?