

11. The height of a rocket after t seconds can be measured by the function $H(t) = -16t^2 + 720t$, where H is in feet.

- a) Determine $H(15)$. Write a sentence explaining what your answer represents.
- b) Find the horizontal intercepts of $H(t)$ by factoring. Show the factored form. After how many seconds does the rocket hit the ground?
- c) After how many seconds is the maximum height reached? What is the maximum height?

12. Put into factored form, and determine the horizontal intercepts:

- a. $f(x) = 3x^2 - 33x + 54$.
- b. $g(x) = 9x^2 - 64$
- c. $h(x) = 3x^2 - 4x - 4$

13. Solve by the quadratic formula: $2x^2 = -5x - 3$. Show ALL Steps.

14. A quadratic function has x -intercepts at $(0, 0)$ and $(7, 0)$; and passes through the point $(9, 36)$

- a. Determine an equation for the quadratic function.
- b. Determine the coordinates of the vertex.
- c. Sketch the graph.

TO PREPARE FOR THE EXAM ALSO REVIEW

- p. 355 Exer. # 16(a-d) and #17
- p. 477 Exer. # 17
- p. 498 - 499 Examples # 2 and 3
- p. 502 Example # 6
- p. 508 Exer. # 7

x	-1	0	1	2	3
$f(x)$	4.6154	6	7.8	10.14	13.182
$g(x)$	3	4.517	7.047	10.177	12.657
$h(x)$	32.72	32.16	31.60	31.04	30.48

2. Convert each of the following percent changes into the corresponding growth or decay factor.

- a. 15% increase b. 25% decrease c. 100% increase d. 7.5% decrease

3. Indicate which decimal values could represent growth factors and which decay factors. Then determine the corresponding percent increase or decrease.

- a. $1\frac{1}{33}$ b. 0.91 c. 3.00 d. 0.05

4. The population of a town in the year 2000 was 1356. If the population increases by 2.5% per year, find an equation for the population $P(t)$ where t is the number of years since 2000. Determine the predicted population in the year 2009.

5. The percent of color remaining in Blue jeans after t washings is given by $P(t) = 100(0.97)^t$.

- a. What percent of the color remains after 2 washings?
b. Algebraically determine how many washings it takes for 50% of the color to be lost.

6. Kevin purchased a new CD player for \$250. Two years later he sold it for \$202.50. Assume the price of the CD player decreases exponentially, determine an equation for the value of the CD player t years after it was purchased.

7. The owner of a small clothing store is retiring in a few months, and has decided to reduce prices 12% per week.

- a. Determine an equation for the value of an article of clothing originally selling for \$485 after t weeks.
b. Use part (a) to algebraically determine when the \$485 article of clothing will sell for \$135.

8. Expand a. $\log[z(z-1)^2]$ b. $\log\left(\frac{t^2\sqrt{y}}{2z}\right)$

9. Write as a single logarithm.

- a. $\log x + \log y$ b. $5\log(x+3) - \log 13$
c. $4\log x + \frac{1}{3}\log y$

10. Solve (round your answer to four decimal places). Show ALL work.

- a. $25(1.16)^x = 250$
b. $12(1.5)^{x+1} = 17$
c. $\log(x+3) = 2$
d. $\log(x+5) + \log(8) = 3$