

5. vertical stretch of 7; odd fcn

6. Vertical stretch of 2.5, reflected over x-axis; even fcn

7. A rainfall of $6\frac{1}{2}$ in will produce a

max # of mosquitoes, 42.25 million

(To maximize, find vertex. $h = -b/2a$ $k = f(-b/2a)$)

8. ① $I =$ intensity (foot candles) ② $I = \frac{k}{d^2}$ ③ $I = \frac{k}{5^2}$ $k = 75$
 $d =$ distance from light source

④ $I = \frac{75}{d^2}$ ⑤ $I = \frac{75}{15^2} = \frac{75}{225} = \frac{1}{3}$ ⑥ The intensity of light is 15 foot candles
is $\frac{1}{3}$ foot candles

9. $V(4,4)$ thru $(3,6)$ Solve for a $y = a(x-h)^2 + k$

$$6 = a(3-4)^2 + 4$$

$$6 = a(-1)^2 + 4$$

$$6 = a + 4$$

$$a = 2$$

$$y = 2(x-4)^2 + 4$$

$$y = 2(x^2 - 8x + 16) + 4$$

$$y = 2x^2 - 16x + 32 + 4$$

$$y = 2x^2 - 16x + 36$$

10. $f(x) = 2x^2 - 20x + 53$

Axis of Sym $x = h = \frac{-(-20)}{2(2)} = \frac{20}{4} = 5$

$$f(5) = 2(5)^2 - 20(5) + 53$$

$$50 - 100 + 53 = 3$$

Vertex $(5, 3)$

11. Rate ^{varies} directly ^{with} distance
and varies inversely with time

12. $A = kA^2$

13. $(-3, 8)$ $(1, 4)$

$$m = \frac{8-4}{-3-1} = \frac{4}{-4} = -1$$

$$y = mx + b$$

$$4 = -1(1) + b$$

$$4 = -1 + b$$

$$b = 5$$

Equ:

$$y = -x + 5$$

14. $y = 1.033x - 2.185$