**Chapter 2 Review- SOLUTIONS**

 **1.** **a)** I, $θ$R = 35$°$

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 **b)** II, $θ$R = 15$°$

 

 **c)** III, $θ$R = 36$°$



 **2. a)** $-$1` **b)** $\frac{1}{\sqrt{3}}$

 **c)** $-\frac{1}{\sqrt{2}}$

 **3.** sin$ θ $= $\frac{5}{\sqrt{41}}$, cos $θ$ = $-$ $\frac{4}{\sqrt{41}}$, tan $θ$ = - $\frac{5}{4}$

 **4.** cos $θ$ = - $\frac{8}{17}$, tan $θ$ = - $\frac{15}{8}$

 **5.** **a)** 54$°$, 306$°$ **b)** 300$°$, 240$°$

 **6.** **a)** 19$°$ **b)** 205

 **7. a)** 0 triangles **b)** 2 triangles

 **8. a)** 13.4 **b)** 27$°$

**Chapter 3 Review- SOLUTIONS**

 **1.** **a)** two *x*-intercepts, *x* = -5, domain {*x |* *x* $ϵ$ R},

 range {*y* | *y* $\leq $ 6, *y* $ϵ$ R}

 **b)** one *x*-intercept, *x* = 8, domain {*x* | *x* $ϵ$ R},

 range {*y* | *y* $\geq $ 0, *y* $ϵ$ R}

 **2.** **a)** (3, -7); maximum value is -7

 **b)** (-11, 8); minimum value isb8

 **3.** **a)** b)

 

 **4. a)** *y* = -$\frac{5}{16}$*x*2 **b)** *y* = -$\frac{5}{16}$(*x* – 4)2 + 5

 **c)** Answers may vary. Example: The value of *a* is

 the same but the values of *p* and *q*change.

 **5.** **a)** (-4, 0), (2, 0), (0, -8)

 **b)** (-9, 0), (-1, 0), (0, 9)

 **6.** **a)** -$\frac{3}{2}$ **b)** -$\frac{5}{6}$

 **7.** **a)** *x* = -5, opens downward

 **b)** *x* = $\frac{2}{3}$, opens upward

 **8. a)** *y* = (*x* + 3)2 + 6, domain {*x* | *x* $ϵ$ R},

 range {*y* | *y* $\geq $ 6, *y* $ϵ$ R}

 **b)** *y* = -3(*x* + 6)2 + 8, domain {*x* | *x*$ ϵ$R},

 range {*y* | *y* $\leq $ 8, *y* $ϵ$ R}

 **c)** *y* = 2(*x* – 4)2 – 10, domain {*x* | *x* $ϵ$ R},

range {*y* | *y* $\geq $ -10, *y* $ϵ$ R}

 d) *y* = $\frac{1}{2}$(*x* – 1)2 + $\frac{5}{2}$, domain {*x* | *x* $ϵ$ R},

 range $\left\{y | y \geq \frac{5}{2}, y ϵ R\right\}$

 **9.** **a)** (10, 105)

 **b)** The maximum profit of $105 occurs on the 10th

 day of sales.

 **10.** **a)** *r* = (10 + *v*)(120 – 5*v*)

 **b)** The maximum revenue of $1445 occurs at a price

 of $17

**Chapter 4 Review- SOLUTIONS**

 **1. a)** -1.5 **b) 3**

 **2.** **a)** Example: The location of the vertex and the

 direction of opening determine the number

 of zeros for the quadratic function. In this

 case, the graph would intersect the *x*-axis in

 two places.

 **b)** Example: The location of the vertex is on the

 *x*-axis.

 **c)** Example: The minimum is above the *x*-axis, or

 the maximum is below the *x*-axis, meaning that

 the graph does not intersect the *x*-axis.



 **3.** **a)** 2.8, 7.2 **b)** 8.6, 13.4

 

 **c)** 0.1, 3.1



 **4.** **a)** (*a* – 7*b* + 68)(*a* + 7*b* – 58)

 **b)** (*x* + 3)(*x* – 5) **c)** $\left(\frac{3m}{4}+ \frac{10n}{9}\right)\left(\frac{3m}{4}- \frac{10n}{9}\right)$

 **5.** **a)** -4, -2 **b)** $\frac{2}{3}, 1$

 **c)** $\frac{3}{2}$, $\frac{9}{2}$ **d)** $-\frac{3}{2}, \frac{3}{2}$

 **6.** 9 in. by 12 in.

 **7.** **a)** $\pm $13 **b)** -18, 4

 **c)** $-4\sqrt{5}+12, 4\sqrt{5}+12$ **d)** $-5, 3$

 **8.** **a)** $-\sqrt{23}-4, \sqrt{23}-4; -8.8, 0.8$

 **b)** $-3\sqrt{2}+5, 3\sqrt{2}+5;0.8, 9.2$

 **9.** 30th day

 **10.** **a)** 2 roots **b)** 2 roots

 **c)** 1 root **d)** 0 roots

 **11.** **a)** $5-\sqrt{15}, 5+\sqrt{15}$; 1.1, 8.9

 **b)** $\frac{–1+\sqrt{41}}{5}, \frac{-1-\sqrt{41}}{5}; -1.5, 1.1$

 **12. a) -7, 3 b)** $-\frac{2}{5}$**, 3**

 **b)** $\frac{–9+ \sqrt{57}}{4}, \frac{-9- \sqrt{57}}{4}$