**Quadratic Functions – Practice #1**

**1. Solve the following quadratic equations.**

**a)** $x^{2}+6=6x$ **b)** $2x^{2}=3x+5$ **c)** $5x^{2}-40x+80=0$

**2. Expand and simplify the following expressions; note final answers should be expressed in simplified mixed radical form.**

**a)** $\sqrt{8}\sqrt{3}$ **b)** $\frac{\sqrt{54}}{\sqrt{3}}$ **c)** $\frac{\sqrt{6}\sqrt{10}}{\sqrt{3}}$

**3. Determine the point(s) of intersection between the given line and parabola.**

**a)** $y=x^{2}+6x-10$ **b)** $y=-2x^{2}+3x-9$

$y=2x-14$$y=x-8$

**4. Determine the distance separating the two points of intersection for the graphs:**

$$y=-x^{2}+5x-4$$

$$y=x^{2}-7x-4$$

**5. Determine the family of quadratic functions that have an x-intercept of**

 **4 and 12.**

**6. a) Determine the family of quadratic functions that have a vertex**

 **at (4, -2).**

 **b) Determine the specific quadratic equation from part a) that goes**

 **through the point (3, -5).**

**7. A bridge is built such that the two ends that touch the ground are**

 **separated by 8 m. Two metres in from one side, the bridge is 3 m high.**

 **What is the highest point on the bridge?**

**8. A football is thrown in a parabolic arc down the field to a receiver. The football leaves the quarterback’s hand from a height of 3 m above the ground. The football reaches a maximum height of 12 m once it has gone 15 m down the field. If the received misses the ball, how far down the field does it travel before hitting the ground?**