Math Analysis I Honors **Chapter 1 Review Answers**

1. (1, -3) one point of intersection – tangent
2. Discriminant = 0 so there is one real root (double root) so the graph is tangent to the x-axis, meaning it touches the x-axis in one place and bounces off.
3. vertex (2, 0)
   x-ints.(2,0) double root
   y-int. (0, -4)
   axis of symmetry: x = 2
   sad parabola
4. vertex (3, 2)
   x-ints. None – comes out imaginary
   y-int. (0, 11)
   axis of symmetry: x = 3
   happy parabola
5. (1, 4) one point of intersection – tangent
6. Roots (-0.317, 0) & (6.317, 0)
   Vertex = minimum (3, -11)
   Intersections (5.162, -6.325) & (-1.162, 6.325)
7. $f(x) = 4x^2 - 5x + 2$
8. $a) \ 3i\sqrt{10}$

   $b) \ 26 - 7i$

   $c) \ -i$

   $d) \ 16 - 30i$

   $e) \ \dfrac{-4 + 19i}{13}$
9. a) (3x + 16)(x – 2) = 0 x = -16/3, x = 2

   b) $(x - 1)^2 = -3/2$ Divide by 2 and add 1 to both sides. $x = 1 \pm i\sqrt{\frac{3}{2}} = 1 \pm i\frac{\sqrt{6}}{2}$

   c) $x = \frac{-1 \pm 3i\sqrt{3}}{14}$

   d) Muliply by LCD: $x^2 - 16$ x = -2 Gained a root of x = -4 (cross it out)
10. vertex (-1, -16)
    axis of symmetry: x = -1
    y-int. (0, -15)
    x-ints.(-5,0) (3, 0)
    Happy parabola
11. discriminant = 36 >0 means two real different roots so the parabola crosses the x-axis twice.
12. $y = -3x^2 - 12x + 15$

Matching

1. g
2. c
3. b
4. h
5. f
6. a
7. e
8. d