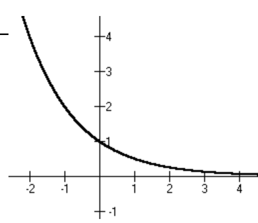
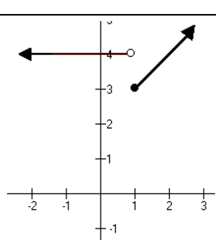
Precalculus and Honors Precalculus **ANSWER KEY**
Review for Final Exam

1. $T = (20 \div 2)(-2 + 150) = 1480$
2. $\frac{5}{3}$
3. $\lim_{x\to 2} f(x) = -1$
4. $x \le -1$ or $x > 2$
5. $x = 5\sqrt{3}$
6. $\frac{x^2}{4} + \frac{y^2}{9} = 1$
7. $x = 9$
8. a) Relation: Any set of ordered pairs
   b) Function: A Relation with no "x" value repeated
   c) Range: The set of all "y" values
   d) Domain: The set of all "y" values
9. sin 170°
10. $x = -\frac{5}{3}$ or $x = 4$
11. sequence = 1, 2, 5, 8, 11, 14 T = 40
12. $f[g(x)] = 2(4x - 2) + 5 = 8x + 1$
13. $P = 3{,}424{,}000\,(1.013)^{10} = 3{,}896{,}081$
14. $(x - 4)^2 + (y + 2)^2 = 9$
15. $x = 15 \tan(37°) = 11.3$ cm
16. $\sum_{x=3}^{10} (3x - 1)$ = 8+11+14+17+20+23+26+29 = 148
17. $(-2\sqrt{2}\,,\ 2\sqrt{2})$
18.



19. $\frac{x^2}{9} - \frac{y^2}{4} = 1$
20. factors: $(x^2 + 9)(x - 4)$ roots: $3i$, $-3i$, and 4
21. 288°
22. length = $\frac{43\pi}{36}$
23. graph shown



24. circle with radius = 1, center at (1, 0)
25. $x = -1$, $y = 3$
26. $x = 81$
27. $y = 3 \sin 2x + 1$
28. $\frac{1}{2}$
29. $x = 14.0$ cm
30. $(x + 3)$ is a factor
31. inverse: $y = \frac{8}{5}x + \frac{48}{5}$ or $y = 1.6x + 9.6$
32. amplitude = 2
33. remainder = 29
34. possible roots: $\pm1, \pm2, \pm3, \pm6, \pm\frac{1}{3}$, and $\pm\frac{2}{3}$
35. $x = 8$ cm
36. period = 45° or $\frac{\pi}{4}$
37. area = 139 cm^2
38. $\frac{(x-3)^2}{9} + \frac{(y+1)^2}{4} = 1$
39. hyperbola
40. $\theta = 240°$ or $300°$
41. $\log_5 (8^3 \times 9 \div \sqrt{3}) = \log_5 1536\sqrt{3}$
42. Quartic function with single roots at 2 and –2, and a double root at 0
43. $|x| \ge 1$
44. limit = 0
45. csc x – sec x
46. $\frac{1}{2} \log_2 4 = 1$
47. inverse of $y = 2x^2 - 4$, $x \le 0$ is $y = -\sqrt{\frac{x+4}{2}}$
48. $y = -(x + 1)^2 (x - 2)$
49. The vertical asymptotes are x = -1 and x = 3
    The horizontal asymptote is y = 0 (x-axis)
    The root is at the point (2, 0)
    The y-intercept is at the point $(0, \frac{4}{3})$
50. $x = 0, y = 4$
    $x = -\sqrt{7}, y = -3$
    $x = \sqrt{7}, y = -3$