1. 5 pts. each  List the quadrants satisfying each condition, or state that no quadrant works.

   (a) $y/x > 0$

   (b) $x < 0$ and $xy > 0$

2. 10 pts.  Graph $y = \frac{1}{2}|x|$, letting $x = -4, -2, 0, 2, 4$.

3. 10 pts. each  Find the solution set of each equation.

   (a) $5x - (2 - 2x) = x + (3x - 5)$

   (b) $\dfrac{6}{x + 3} + \dfrac{20}{x^2 + x - 6} = \dfrac{5}{x - 2}$

4. 15 pts.  You invested \$30,000 in two accounts paying 2.19% and 2.45% annual interest. If the total interest earned for the year was \$705.88, how much was invested at each rate?

5. 10 pts.  Solve $T = D + pm$ for $p$.

6. 10 pts. each  Express each in the standard form $a + bi$.

   (a) $(6 - i)(3 + 5i)$

   (b) $\dfrac{4i}{1 + i}$

7. 5 pts.  Do a long division to determines whether $i^{613}$ equals $1, -1, i,$ or $-i$. Show the long division work!

8. 10 pts. each  Solve each by the method indicated, writing complex-valued solutions in standard form.

   (a) $5x^2 + x - 2 = 0$ by the quadratic formula.

   (b) $x^2 - 6x + 10 = 0$ by completing the square.

9. 15 pts.  Each side of a square is lengthened by 2 cm. The area of the new, larger square is 36 cm$^2$. Find the lengths of the original square's sides.

10. [10 pts. each] Solve each equation.

(a) $\sqrt{2x + 15} - 6 = x$

(b) $2x^{2/3} + 7x^{1/3} - 15 = 0$

(c) $|2x - 1| = 5$

11. [10 pts. each] Solve each inequality, stating the solution set in interval notation when appropriate.

(a) $8x - 9 \leq 3x - 13$

(b) $|5 - 2(x - 1)| > 4$

(c) $-3|x + 7| \geq -27$