1) On the back of this paper sketch a graph of \( y = x^3 - x^2 - 2x \).

2) A boat is sailed 140 miles. If it had had better sail trim it would have sailed 0.80162 mph faster. In that case it could have made the trip in 2 hours 45 minutes less time. How fast was the boat going?

3) Find the center of the circle, \( x^2 + y^2 - 4x + 2y - 4 = 0 \)

4) Multiply, \((x + 3)(x - 3)(x^2 + 9)\)

5) Solve, \(2x^4 + x^3 - 2x^2 + 6x + 2 = 0\)

6) Solve, \(2x^2 + x - 4 = 0\)

7) Solve for \(x\), \(x^2 - 2bx - 8b^2 = 0\)

8) Joe can do a job in 4 hours and Chip can do the same job in 2 hours. How long will it take if they work together for 3 jobs?

9) Solve, \(\sqrt{3x - 4} = 2\)

10) Susan and Ken leave a campsite, Susan biking due north and Ken biking due east. Susan bikes 3 km/hr faster than Ken. After 4 hours they are 30 km apart. Find the speed of each biker.

11) Find the equation of the line that connects (2,2) and (2,3).

12) Find the equation of the line that connects (1,-1) and (-2,-1).

13) Find the equation of the line that is perpendicular to \(y = 2x + 73\) and that passes through (1,3).

14) Find the equation of the line that is parallel to \(y = 2x + 73\) and that passes through (7,1).

Bonus: derive the quadratic formula.

\[
ax^2 + bx + c = 0
\]

\[
x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}
\]