5. [5 points] Find a formula for *one* polynomial $p(z)$ that satisfies *all* of the following conditions:

- $\lim_{z\to\infty} p(z) = -\infty$ and $\lim_{z\to-\infty} p(z) = -\infty$
- The only zeros of $p(z)$ are $z = -2$, $z = 1$, and $z = 3$.
- The point $(2, -12)$ is on the graph of $p(z)$.
- The degree of $p(z)$ is at most 5.

Show your work and reasoning carefully. You might find it helpful to first sketch a graph. There may be more than one possible answer, but you should give only one answer.

Answer: $p(z) =$ _____

6. [5 points] Find all solutions to the equation

$$5\tan\left(2x + \frac{\pi}{2}\right) - 13 = 12$$

for x between 0 and 5. *Show your work carefully and give your answer(s) in exact form.*

Answer: $x =$ _____