

MATH 1010-2: QUIZ 10
November 18, 2010
NO CALCULATORS ALLOWED.

1. (5 points) Solve using any method you choose:

$$5x(x + 1) = 100.$$

Solution. We can divide both sides by 5 to get

$$x(x + 1) = 20.$$

Simplifying the left-hand side and bringing the 20 to the left-hand side gives

$$x^2 + x - 20 = 0.$$

This one actually factors as

$$(x + 5)(x - 4) = 0.$$

So $x = -5$ or $x = 4$. Other routes to these solutions (using the quadratic formula or completing the square) are possible.

2. (5 points) Solve the following equation using any method you choose. Write your answer(s) as complex number(s) in standard form.

$$x^2 + 6x + 25 = 0.$$

Solution. We apply the quadratic formula with $a = 1$, $b = 6$, and $c = 25$:

$$\begin{aligned} x &= \frac{-6 \pm \sqrt{6^2 - 4(1)(25)}}{2(1)} \\ &= \frac{-6 \pm \sqrt{36 - 100}}{2} \\ &= \frac{-6 \pm \sqrt{-64}}{2} \\ &= \frac{-6 \pm 8i}{2} \\ &= \boxed{-3 \pm 4i}. \end{aligned}$$