



## Grade 9/10 Math Circles

November 17, 2021

### Complex Numbers Lesson 1 - Problem Set

1. (Referenced as Section 2.5 (1 - 7) in lesson) Solve each equation for  $x \in \mathbb{I}$ .

(a)  $x^2 = -1$

(b)  $x^2 = -81$

(c)  $x^2 = -10$

(d)  $x^2 + 4 = 0$

(e)  $-x^2 - 9 = 0$

(f)  $\frac{x^2 + 5}{4} = -11$

(g)  $x^2 - 6x + 13 = 0$

2. (Referenced as Section 3.3 (1 - 7) in lesson) Solve each equation for  $x \in \mathbb{C}$ . Simplify your answer as much as possible.

(a)  $x^2 + 7 = 0$

(b)  $x^2 + 5x + 15 = 0$

(c)  $x^2 + x - 5 = 0$

(d)  $x^2 = 3x - 4$

(e)  $2x^2 - 3x + 7 = 0$

(f)  $7x^2 - 4x + 2 = 0$

(g)  $-2x^2 - 5x - 10 = 0$