U7 - L13: Solving Using Completing the Square WS

Name Key

Change to vertex form: (use completing the square)

① $y = x^2 + 6x + 5$

$y = (x+3)^2 - 4$

vertex: $(-3, -4)$

② $y = x^2 - 2x + 8$

$y = (x-1)^2 + 7$

vertex: $(1, 7)$

Solve using completing the square

③ $n^2 + 7n + 15 = 5$

$n^2 + 7n + 10 = 0$

$(n+3.5)^2 - 2.25 = 0$

$(n+3.5)^2 = 2.25$

$n + 3.5 = \pm\sqrt{2.25}$

$n + 3.5 = 1.5$

$-3.5 \quad -3.5$

$n = -2$

$n + 3.5 = -1.5$

$-3.5 \quad -3.5$

$n = -5$

④ $n^2 + 3n - 12 = 6$

$n^2 + 3n - 18 = 0$

$(n+1.5)^2 - 20.25 = 0$

$(n+1.5)^2 = 20.25$

$n + 1.5 = \pm\sqrt{20.25}$

$n + 1.5 = 4.5$

$-1.5 \quad -1.5$

$n = 3$

$n + 1.5 = -4.5$

$-1.5 \quad -1.5$

$n = -6$