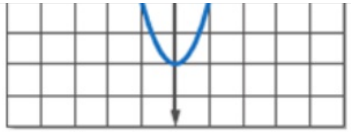
2. Find the coordinates of the vertex of the graph of $y = -x^2 - 4x - 6$. Identify the vertex as a maximum or a minimum.



$a = -1$

$b = -4$

max

$x = \frac{-b}{2a} = \frac{-(-4)}{2(-1)} = -2$

$y = -(-2)^2 - 4(-2) - 6$

$-4 + 8 - 6 = -2$

2. (-2, -2)

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3. Solve $x^2 + 8x + 16 = 169$ by taking the square root of each side.

$(x+4)(x+4) = 169$ $\quad \sqrt{(x+4)^2} = \sqrt{169}$

$x + 4 = \pm 13$

$x = -4 \pm 13 = -17, 9$

3. $-17, 9$

4. Which equation can be used to solve $2b^2 + 24b + 56 = 0$ by completing the square?

F $(b + 6)^2 = 8$ G $(b + 6)^2 = 46$ H $(b + 3)^2 = 11$ J $(b + 3)^2 = 19$

4. F

$\frac{2b^2}{2} + \frac{24b}{2} + \frac{56}{2} = \frac{0}{2}$ $\quad \left(\frac{12}{2}\right)^2 = 36$

$b^2 + 12b + 28 = 0$

$b^2 + 12b + 36 = -28 + 36$

$(b+6)(b+6) = 8$