Completing the square (Part 1)

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Name:

Complete the square for the following quadratic expressions

a) $x^2 + 6x + 3$

$$(x+3)^2 - 6$$

b) $x^2 + 8x - 1$

$$(x+4)^2 - 17$$

c) $x^2 - 4x + 1$

$$(x-2)^2 - 3$$

d) $x^2 - 6x - 8$

$$(x-3)^2 - 17$$

e) $x^2 + 2x - 9$

$$(x+1)^2 - 10$$

f) $x^2 - 10x + 5$

$$(x-5)^2 - 20$$

g) $x^2 + 4x + 11$

$$(x+2)^2 + 7$$

h) $x^2 + 6x - 15$

$$(x+3)^2 - 24$$

i) $x^2 + 12x - 8$

$$(x+6)^2 - 44$$

j) $x^2 - 3x + 5$

$$\left(x - \frac{3}{2}\right)^2 + \frac{11}{4}$$

k) $x^2 - 5x - 9$

$$\left(x - \frac{5}{2}\right)^2 - \frac{61}{4}$$

l) $x^2 - 7x - 7$

$$\left(x - \frac{7}{2}\right)^2 - \frac{77}{4}$$

Exam question:

Write $m^2 + 6m + 4$ in the form $(m + a)^2 - b$ where a and b are constants to be determined.

$$(m+3)^2 - 5$$