To hear and view this Pencast PDF on your computer,
click here to get the latest version of Adobe® Reader®

Sample Questions Set 06

Recap: Completing the square

Applied: $x^2 + ax$

$x^2 + ax + \underline{\quad ? \quad} = (\quad ?? \quad)^2$

$x^2 + ax + \left(\frac{a}{2}\right)^2 = \left(x + \frac{a}{2}\right)^2$

$\times \frac{1}{2}$

Remark: $x^2 + ax \neq \left(x + \frac{a}{2}\right)^2$

constant added

1. $1x^2 + 6x \overset{\times 1/1}{=} x^2 + 6x + \underbrace{(3)^2 - (3)^2}_{0} \quad \times$

$= (x+3)^2 - 9 \quad \times$

$= (x+3)^2 - 9$

$A = 1 \quad B = 3 \quad C = -9$

To hear and view this Pencast PDF on your computer,
click here to get the latest version of Adobe® Reader®.

apply completing the SQ

2. $x^2+6x-8 = (x^2+6x)-8$

$= (x^2+6x+(3^2)-(3^2))-8$

$=((x+3)^2-9)-8 = (x+3)^2-17$

$A=1$ $B=3$ $C=-17$

3. $x^2-6x = x^2+(-6)x$ ← skip

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

$= (x+(-3))^2-9 = (x-3)^2-9$

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

$=(x-3)^2-9$

$A=1$ $B=-3$ $C=-9$

To hear and view this Pencast PDF on your computer,
click here to get the latest version of Adobe® Reader®

4. $2x^2+4x-5 = 2(x^2+2x) - 5$

$= 2(x^2+2x+(1)^2-(1)^2) - 5$

$= 2((x+1)^2-1) - 5 = 2(x+1)^2 - 2 - 5$

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

A B $C = -7$

5. $3x^2-9x = 3(x^2-3x)$

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

$= 3\left(\left(x-\frac{3}{2}\right)^2-\frac{9}{4}\right)$

$= 3\left(x-\frac{3}{2}\right)^2-\frac{27}{4}$

A $B = -3/2$ $C = -27/4$

To hear and view this Pencast PDF on your computer,
click here to get the latest version of Adobe® Reader®

6. $-3x^2+3x+2 = -3\left(x^2-x\right)+2$

$= -3\left(x^2-x+\left(-\frac{1}{2}\right)^2-\left(-\frac{1}{2}\right)^2\right)+2$

$= -3\left(\left(x-\frac{1}{2}\right)^2-\frac{1}{4}\right)+2$

$= -3\left(x-\frac{1}{2}\right)^2+\frac{3}{4}+2$

$= -3\left(x-\frac{1}{2}\right)^2+\frac{3+8}{4}$

$= -3\left(x-\frac{1}{2}\right)^2+\frac{11}{4}$

$A=-3 \quad B=-\frac{1}{2} \quad C=\frac{11}{4}$

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

$A=3 \quad B=0 \quad C=-2$

Nothing to do. Done!