ALGEBRA REVISION 2
TERM 3

Q1. Solve equations

(a)(i) $16x - 9 = -2x + 1$

$18x = 10$

$x = 10/18 = 5/9$

(ii) $x^4 = 256$

$x^2 = 16$

$x = \pm 4$

(iii) $2x^3 = 54$

$x^3 = 54/2 = 27$

$x = 3$

(b) Solve $3x^2 - 5x - 2 = 0$

-6, -6, 1

$3x^2 - 6x + x - 2 = 0$

$3x(x-2) + 1(x-2) = 0$ $\quad \therefore x = 2$ or $x = -\frac{1}{3}$

(c)(i) Factorise $x^2 - x - 42 = (x + 6)(x - 7)$

(ii) Simplify $\frac{x^2 - x - 42}{x^2 + 6x} = \frac{(x+6)(x-7)}{x(x+6)} = \frac{x-7}{x}$

Q2

(a) $V = 5\pi\sqrt{\frac{m}{k}}$

(i) if $m = 64$ and $k = 9$, find V in terms of π

$V = 5\pi \times \sqrt{\frac{64}{9}} \Rightarrow V = 5\pi \times \frac{8}{3} = \frac{40\pi}{3}$

(ii) Rewrite the formula with m as the subject.

$5\pi\sqrt{\frac{m}{k}} = V \Rightarrow \sqrt{\frac{m}{k}} = \frac{V}{5\pi} \Rightarrow \frac{m}{k} = \left(\frac{V}{5\pi}\right)^2$

$m = \frac{kV^2}{25\pi^2}$

(b)(i) Expand $4x(x-2)$

$4x^2 - 8x$