

3) Factor the following:

a) $-3x^2 + 33x - 54$

$$\begin{aligned} & -3(x^2 - 11x + 18) \\ & \boxed{-3(x-9)(x-2)} \\ & (-9)(-2) = 18 \end{aligned}$$

$$(-9) + (-2) = -11$$

c) $-16x^2 + 25$

$$\begin{aligned} & -(16x^2 - 25) \\ & -((4x)^2 - 5^2) \\ & -(4x - 5)(4x + 5) \end{aligned}$$

e) $11x^2 + 35x + 6$

$$x^2 + 35x + 66$$

$$(x+33)(x+2)$$

$$\boxed{(x+3)(11x+2)}$$

Divide
through
by 11.

g) $12x^2 - 28x - 60$

$$x^2 - 28x - 60$$

$$(x-30)(x+2)$$

$$(x - \frac{3}{2})(x + \frac{2}{3})$$

$$(x - \frac{5}{2})(x + \frac{1}{6}) \rightarrow \boxed{(2x-5)(6x+1)}$$

i) $x^2 - 36$

$$\begin{aligned} & x^2 - 6^2 \\ & \boxed{(x+6)(x-6)} \end{aligned}$$

b) $x^2 - 3x + 2$

$$\boxed{(x-2)(x-1)}$$

OR: $25 - 16x^2$

$$\begin{aligned} & 5^2 - (4x)^2 \\ & (5+4x)(5-4x) \end{aligned}$$

d) $x^2 + 15x + 36$

$$\boxed{(x+3)(x+15)}$$

f) $x^2 + 10x + 16$

$$\boxed{(x+8)(x+2)}$$

h) $2m^2 + 30m + 108$

$$2(m^2 + 15m + 54)$$

$$\boxed{2(m+9)(m+6)}$$

j) $-x^2 - 6x + 27$

$$\begin{aligned} & -(x^2 + 6x - 27) \\ & \boxed{-(x+9)(x-3)} \end{aligned}$$