STATION F_1

Expand and Simplify

a) $(x+3)(3x-2)$

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

c) $(3x-4)(3x+4)$

d) $-4m(m-2)(2m-1)$

STATION A

Factor Fully

a) $2x^2 + 6x$

b) $x^2 + 4x + 3$

c) $9m^2 - 16$

d) $6x^2 + 19x + 8$

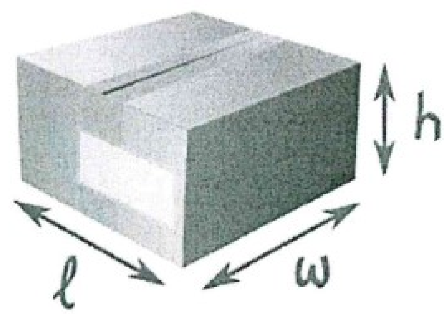
e) $3x(x - 1) + 4(-x + 1)$

f) $10r^2 - 22r + 4$

g) $4h^2 - 36$

STATION O

The volume of a box is given by $V = 3x^3 - 3x + x^2 - 1$. Find the dimensions of the box expressed in terms of x.



STATION R

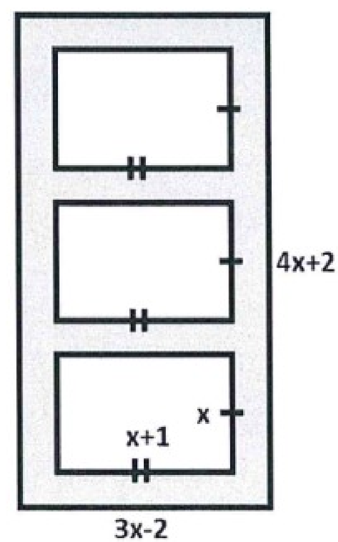
1. Find the values of 'z' so that the following are perfect squares:

   a) $r^2 + zr + 100$ b) $9k^2 - 24k + z$

2. If the trinomial $x^2 + bx - 4$ can be factored, find all possible values for *b*.

STATION T

Determine a simplified expression to represent the shaded area.



STATION F_2

Given the equation $y = 3x^2 + 12x + 14$:

a) Show that it is not factorable

STATION U

Factor fully:

a) $x^4 - 18x^2 + 81$

b) $2x^2 + 28x + 98$

Station A

a. $2x^2 + 6x$

$= 2x(x+3)$

b. $x^2 + 4x + 3$

$= (x+3)(x+1)$

c. $9m^2 - 16$

$= (3m+4)(3m-4)$

a. $6x^2 + 19x + 8$

M 48
A 19
N 16, 3

$= 6x^2 + 16x + 3x + 8$

$= 2x(3x+8) + 1(3x+8)$

$= (3x+8)(2x+1)$

b. $3x(x-1) + 4(-x+1)$

$= 3x(x-1) - 4(x-1)$

$= (x-1)(3x-4)$

c. $10r^2 - 22r + 4$

M 10
A -11
N -10, -1

$= 2(5r^2 - 11r + 2)$

$= 2(5r^2 - 10r - r + 2)$

$= 2[5r(r-2) - 1(r-2)]$

#4 Test $= 2(r-2)(5r-1)$

d. $4h^2 - 36$

$= 4(h^2 - 9)$

$= 4(h+3)(h-3)$

Station F_1

a. $(x+3)(3x-2)$

$= 3x^2 - 2x + 9x - 6$

$= 3x^2 + 7x - 6$

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

$= 9x^2 - 12x + 4$

a. $(3x-4)(3x+4)$

$= 9x^2 - 16$

b. $-4m(m-2)(2m-1)$

$= -4m\ (2m^2 - 5m + 2)$

$= -8m^3 + 20m^2 - 8m$

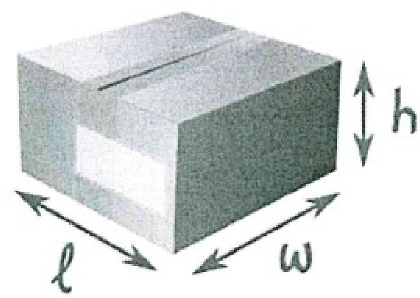
Station O

$V = 3x^3 - 3x + x^2 - 1$

$= 3x(x^2-1) + 1(x^2-1)$

$= (3x+1)(x^2-1)$

$= (3x+1)(x+1)(x-1)$



∴ Dimensions are $(3x+1)$ units by $(x+1)$ units by $(x-1)$ units.

Station R

a. $r^2 + zr + 100$

$z = 2(1)(10)$
$= 20$

b. $9k^2 - 24k + z$

$2(3)(\sqrt{z}) = 24$
$6\sqrt{z} = 24$
$\sqrt{z} = 4$
$z = 16$

10. If the trinomial $x^2 + bx - 4$ can be factored, find all possible values for b. Explain your solution.

b is the sum of 2 numbers whose product is -4.

OPTIONS:

	SUM
-1 & 4	3
1 & -4	-3
2 & -2	0

$\therefore b = -3, 3$ or 0

Station F_2

a. Show that it is not factorable

To factor over the integers, we need to find 2 numbers whose product is $(3)(14) = 42$ and whose sum is 12.

OPTIONS: 1 & 42, 3 & 14, 2 & 21, 6 & 7 } none have a sum of 12

Station F_2

a. $x^4 - 18x^2 + 81$

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

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

b. $2x^2 + 28x + 98$

$= 2(x^2 + 14x + 49)$

$= 2(x+7)^2$

Station T

$A_{\text{outside rectangle}} = (3x-2)(4x+2)$

$= 12x^2 - 2x - 4$

$A_{\text{inside rectangle}} = x(x+1)$

$= x^2 + x$

$A_{\text{shaded}} = 12x^2 - 2x - 4 - 3(x^2 + x)$

$= 12x^2 - 2x - 4 - 3x^2 - 3x$

$= 9x^2 - 5x - 4$