3. Let the first number be = x

Let the second number be = $27 - x$

$$(x)(27 - x) = 182$$

$$+x^2 + 27x - 182 = 0$$

$$x^2 - 14x - 13x - 182$$

$$x(x - 14) - 13(x - 14)$$

$$x = 14 \text{ or } x = 13$$

let the number be = x

let the other no. be = $x+1$

$$\cancel{(x)^2(x+1)^2 = 365}$$

$$\cancel{(2x+1)^2 = 365}$$

$$\cancel{4x^2+2x+1 = 365}$$

$$\cancel{4x^2+2x = 364}$$

$$(x)^2 (x+1)^2 = 365$$

$$x^2+x^2+2x+1 = 365$$

$$2x^2+2x = 364$$

$$2x^2+2x-364 = 0$$

$$x^2+14x-13x-182 = 0$$

$$\cancel{x^2+x = 182}$$

$$x(x+14)-13(x+14)$$

$$x = 13, -14$$

So, the consecutive integer are 13, 14

5. let the length be = x

$$h^2 = p^2+b^2$$

$$(13)^2 = (x)^2+(x-7)^2$$

$$x^2+x^2+49-14x = 169$$

$$2x^2-14x = 120$$

$$2x^2-14x-120$$

$$= 2x^2-(24-10)x-120$$

$$= 2x^2-24x+10x-120$$

$$= 2x(x-12)+10(x-12)$$

$$= (x-12)(2x+10)$$

$$x = 12 \text{ or } x = -5$$

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

$6x^2 - (4-3)x - 2$

$6x^2 - 4x + 3x - 2$

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

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

Roots $= \frac{2}{3}, \frac{-1}{2}$

6) let the no. of articles be $= x$

price of articles $= 2x+3$

$\cancel{(x)(2x+3) = 90}$

$\cancel{2x^2 + 3x - 90}$

$\cancel{2x^2 + 12x\ (15-12)x - 20}$

$\cancel{2x^2 - 12x + 15x - 20}$

$\cancel{2x(x-6) + 5}$

$(x)(2x+3) = 90$

$2x^2 + 3x - 90 = 0$

$2x^2 + 15x - 12x - 90$

$x(2x+15) - 6(2x+15)$

$x = 6$

No. of articles is 6

price of articles is $2 \times 6 + 3 = 15$