(2)(11) $x^2 - 55x + 750 = 0$

$\Rightarrow x^2 - 25x - 30x + 750 = 0$

$\Rightarrow x(x-25) - 30(x-25) = 0$

$\Rightarrow (x-25)(x-30) = 0$

$\Rightarrow x - 25 = 0,\ x - 30 = 0$

$\Rightarrow x = 25,\ x = 30$

$\therefore$ no. of toys $= 25, 30$

(3) let one no. $= x$

Second no. $= 27 - x$

acc. to question

$x(27-x) = 182$

$\Rightarrow 27x - x^2 = 182$

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

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

$\Rightarrow x(x-13) - 14(x-13) = 0$

$\Rightarrow (x-13)(x-14) = 0$

$\Rightarrow x - 13 = 0,\ x - 14 = 0$

$\Rightarrow x = 13,\ x = 14$

$\therefore$ nos are 13, 14

(4) let the nos be $x, x+1$

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

$\Rightarrow x^2 + x^2 + 1 + 2x - 365 = 0$

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

$\Rightarrow x^2 + x - 182 = 0$

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

$\Rightarrow x(x+14) - 13(x+14) = 0$

$\Rightarrow (x+14)(x-13) = 0$

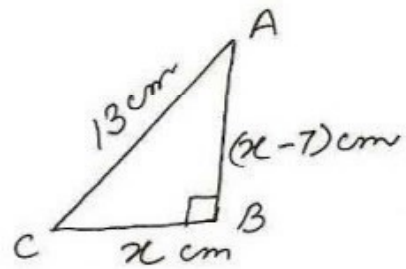
$\Rightarrow x + 14 = 0,\ x - 13 = 0$

$\Rightarrow x = -14,\ x = 13$

rejected.

$\therefore$ nos are 13, 14

(5)



In rt ΔABC

$AC^2 = AB^2 + BC^2$ (pythagoras theorem)

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

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

$\Rightarrow 2x^2 - 14x - 120 = 0$

$(\div 2)$

$x^2 - 7x - 60 = 0$

$\Rightarrow x^2 - 12x + 5x - 60 = 0$

$\Rightarrow x(x-12) + 5(x-12) = 0$

$\Rightarrow (x-12)(x+5) = 0$

$\Rightarrow x - 12 = 0,\ x + 5 = 0$

$\Rightarrow x = 12,\ x = -5$ rejected

$\therefore$ Sides are 12 cm, 5 cm