Revision 3 suggested solutions

4B Ex8A p.45

9)   If a:b = 4:3, using k-method a:b = $4k:3k$

(a) $(a+b)^2 : (a^2 - b^2)$

$$(a+b)^2 : (a^2 - b^2) = \frac{(a+b)^2}{(a^2 - b^2)} = \frac{(4k+3k)^2}{[(4k)^2 - (3k)^2]} = \frac{(7k)^2}{[16k^2 - 9k^2]} = \frac{49}{7} = 7:1$$

b) $ab : (2a+b)(a-b)$

$$ab : (2a+b)(a-b) = \frac{ab}{(2a+b)(a-b)} = \frac{12k^2}{(8+3)k(k)} = \frac{12}{11} = 12:11$$

4B Ex8D p.56

$$(x+3) \propto (y-1)^2$$

therefore, $(x+3) = k(y-1)^2$

x = 3 when y = 7

9(a) $(3+3) = k(7-1)^2$

$$\therefore k = \frac{1}{6}$$

The equation of variation is $(x+3) = \frac{1}{6}(y-1)^2$

(b)   when y=-5,

$$(x+3) = \frac{1}{6}(y-1)^2$$

$$(x+3) = \frac{1}{6}(-5-1)^2$$

$$\therefore x = 3$$