Finding max/mins of quadratics

Methods: - completing square

- factoring

- quadratic formula

- use graphing calc.

- partial factoring

ex: $f(x) = -2x^2 + 8x - 5$ (h,k)

$f(x) = -2x(x-4) - 5$

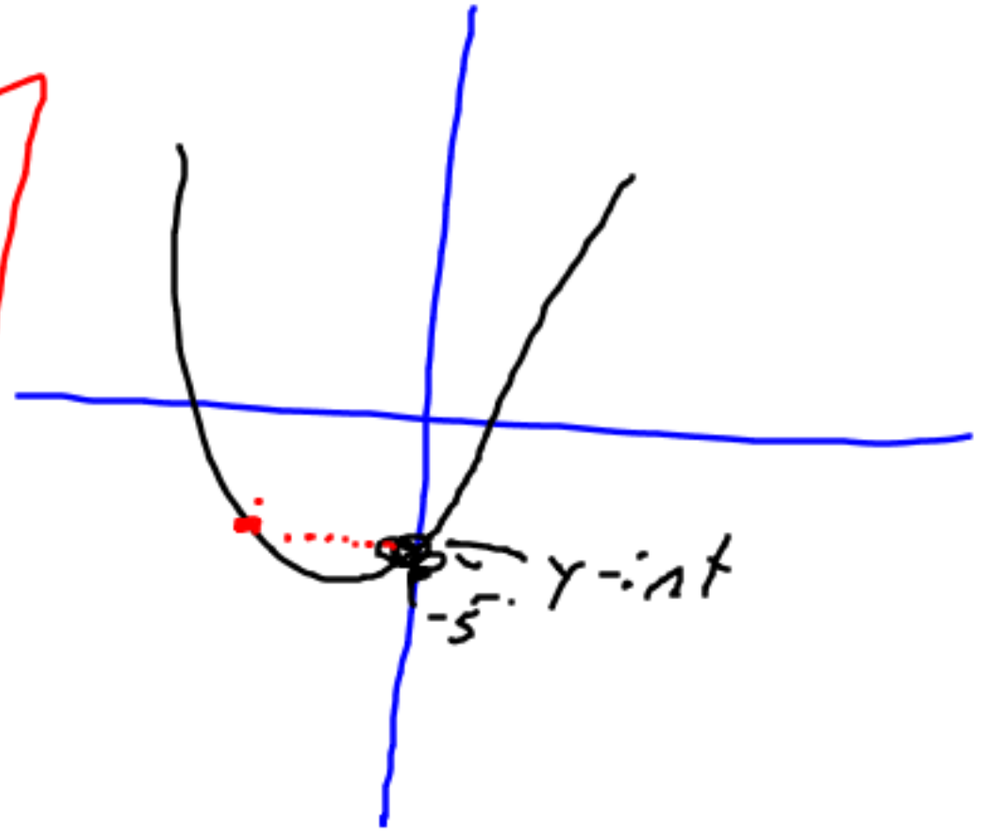
$x=0$ $\quad$ $x=4$

$h = \frac{0+4}{2} = 2$

$(2,3)$

$f(2) = -2(2)^2 + 8(2) - 5$

$= -8 + 16 - 5 = 3 = k$



$$g(x) = 8x^2 - 72x + 11$$

$$= 8x(x - 9) + 11$$

7 7

$x=0$ $x=9$

$$h = \frac{9}{2} = 4.5$$

$$g(4.5) = 8(4.5)^2 - 72(4.5) + 11$$

$$= -151 = k$$

$\therefore$ min of $(4.5, -151)$

$$h(x) = 17.2x^2 + 4.8x - 12.3$$

$$= 17.2x(x + 0.279) - 12.3$$

$x = 0$ $\quad$ $x = -0.279$

$$h = \frac{-0.279}{2} = -0.14$$

$$h(-0.14) = 17.2(-0.14)^2 + 4.8(-0.14) - 12.3$$

$$= -12.63 \qquad \therefore \text{min of } (-0.14, -12.63)$$

$h(x) = 17.2(x + 0.14)^2 - 12.63$

3.1 pg 145 # 4, 6, 7, 8, 11bcd, 12

not e

Assign 4

3.2 pg 153 # 4 (use only partial factoring), 6, 8, 11