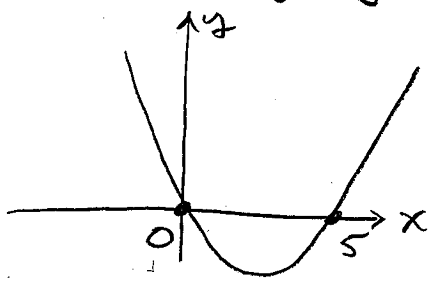
(1) [3] Find the domain of $h(x) = \dfrac{1}{\sqrt{x^2 - 5x}}$.

We require $x^2 - 5x > 0$.

Graph of $y = x^2 - 5x = x(x-5)$ is



So $x^2 - 5x > 0$ for $x < 0$, $x > 5$

$\therefore$ Domain of h is $\boxed{(-\infty, 0) \cup (5, \infty)}$.

(2) [6] Let $f(x) = x^2 - 3x + 5$. Find and simplify $\dfrac{f(2+h) - f(2)}{h}$.

$$\frac{f(2+h) - f(2)}{h} = \frac{1}{h}\left(\left[(2+h)^2 - 3(2+h) + 5\right] - \left[2^2 - 3(2) + 5\right] \right)$$

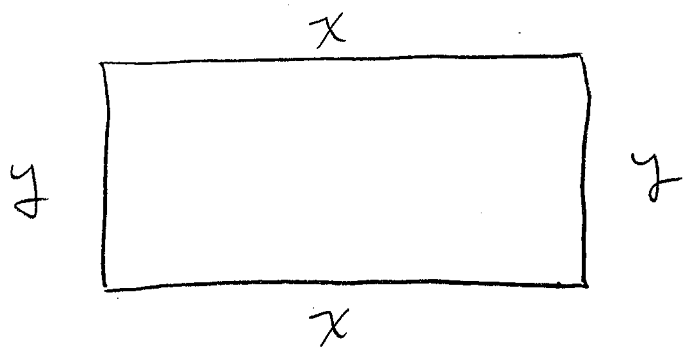
$$= \frac{1}{h}\left[\cancel{4} + 4h + h^2 - \cancel{6} - 3h + \cancel{5} - \cancel{4} + \cancel{6} - \cancel{5}\right]$$

$$= \frac{h^2 + h}{h}$$

$$= \boxed{h + 1}$$

 Name: SOLUTIONS.

(3) [6] A rectangle has perimeter 20 m. Express the area of the rectangle as a function of the length x of one of its sides.



① $2x+2y=20$

② $A=xy$

$$① \Rightarrow \quad 2y = 20-2x$$

$$y = 10-x$$

$$\therefore \quad A = xy$$

$$\boxed{A = x(10-x)} \qquad 0 < x < 10.$$