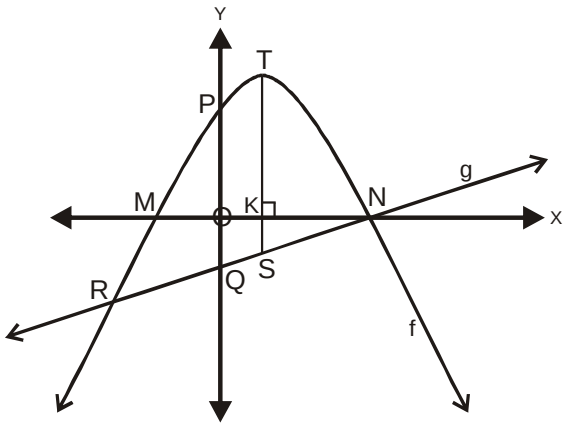
Exercise 2015-12ℰE-00011(1) Applications

(1) In the sketch:

$f(x) = -x^2 + 2x + 8$ and $g(x) = x - 4$



(a) Determine the length of:

(i) MN
(ii) PQ
(iii) OK and TS

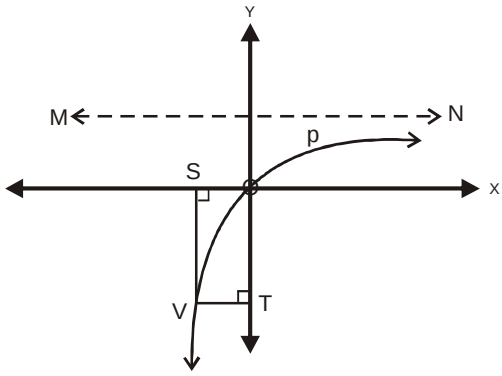
(b) Calculate the coordinates of R.

(c) Write down the coordinates of the turning point of $f(x - 2)$.

(d) $h(x)$ is the reflection of $f(x)$ in the y-axis. Write down the equation of h.

(e) Determine the average gradient of $f(x)$ between $x = 3$ and $x = 5$.

(2) In the sketch $p(x) = -2^{-x} + 1$



(a) Write down the equation of MN.

(b) Calculate the length of SV if VT = 1.

(c) Find the equation of $q(x)$ if $q(x)$ is the reflection of p in the y-axis.

(d) Find the equation of $h(x)$ if $h(x)$ the graph of p which translates 2 units upwards.

(e) Write down the range of p.