131

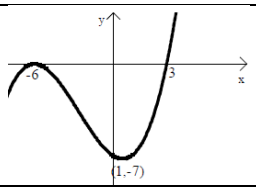
$f(x) = 3 - x$ and $g(x) = \frac{3}{x}, x \neq 0.$

Find $p(x) = f\big(g(x)\big)$.

If $q(x) = \frac{3}{3-x}, x \neq 3$, find $p\big(q(x)\big)$ in its simplest form.

132

The diagram shows $y = f(x)$. Sketch the graphs of $y = -2f(x)$ and $y = f(x - 3)$.



133

Show that the points P(3, 2, 6), Q(5, -2, 10) and R(9, -10, 18) are collinear.

134

Find the magnitude between the origin and the point 'a' (3, 4, 0)

135

Prove the identity:

$$cosAtanA = sinA.$$

136

Find the equation of the straight line through (1, -7) perpendicular to the line $y - 2x = 30$.

137

Find the equation of the median from C for a triangle with vertices A(1, -7) ,B(-4, 7) and C(-1, 3).

138

Find the equation of the tangent to the circle $x^2 + y^2 - 10y - 43 = 0$ at the point (2, -3).

139

A sequence is generated by the recurrence relation $u_{n+1} = 0.4u_n - 30$.

What is the limit of the sequence as $\rightarrow \infty$?

140

Calculate the shaded area shown in the diagram.