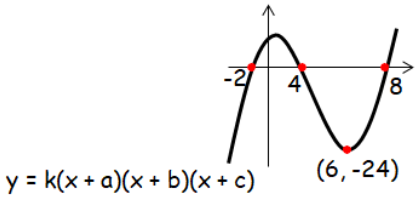
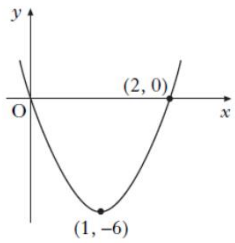
Name:	Date:
Question 1: A function is given by g(x) = 4(x + 3). Find the inverse function $g^{-1}(x)$.	3·3 Outcome 1
Question 2: Express $5x^2 + 10x - 7$ in the form $a(x + b)^2 + c$.	8·2 Bronze Outcome 1
Question 3: If A and B are acute angles with $\sin A = \frac{3}{5}$ and $\cos B = \frac{12}{13}$ find the exact value of $\sin(A + B)$.	10·1 Gold Outcome 3
Question 4: The equation of the cubic shown is of the form y = k(x + a)(x + b)(x + c).  What is the equation of this cubic?	8·1 Gold Outcome 3
Question 5: A point (x, y) lies on the curve with equation $y = x^2 - 6x$. Calculate the coordinates for which the gradient of the tangent is 4.	6·3 Gold Outcome 3
My score:	

Exam Questions

Question 1:

The diagram shows a parabola with equation

$$y = 6x(x - 2).$$

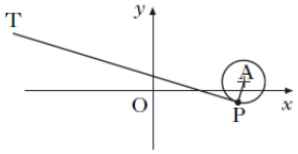


This parabola is the graph of $y = f'(x)$.

Given that $f(1) = 4$, find the formula for $f(x)$. **5**

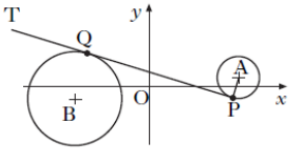
Question 2:

The circle with centre A has equation $x^2 + y^2 - 12x - 2y + 32 = 0$. The line PT is a tangent to this circle at the point P(5, –1).



(*a*) Show that the equation of this tangent is $x + 2y = 3$. **4**

The circle with centre B has equation $x^2 + y^2 + 10x + 2y + 6 = 0$.



(*b*) Show that PT is also a tangent to this circle. **5**

(*c*) Q is the point of contact. Find the length of PQ. **2**

Question 3:

(a) Find the x-coordinate of the stationary point on the curve with equation $y = 6x - 2\sqrt{x^3}$. **4**

(b) Hence, determine the greatest and least values of y in the interval $1 \leq x \leq 9$. **3**

My score: