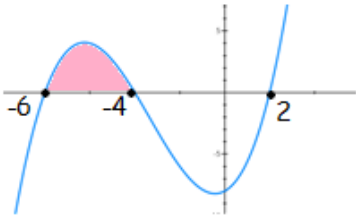| Name:	Date:
Question 1: Show that the line y = 1 – 4x does not intersect the parabola with equation y = 2x² + x + 8.	🖼 8·5 Gold Outcome 3
Question 2: Express $5sinx° + cosx°$ in the form $ksin(x − a)°$ where $k > 0$ and $0 < a < 360.$　📟	🖼 15·1 Silver Outcome 2
Question 3: Solve 2 – 5x - 3x² < 0.	🖼 8·3 Gold Outcome 3
Question 4: The curve y = x³ + 8x² + 4x - 48 intersects the x-axis at points (-6, 0) (-4, 0) and (2, 0).　📟 $y = x^3 + 8x^2 + 4x - 48$ Calculate the shaded area.	🖼 9·4 Bronze Outcome 1
Question 5: If y is an acute angle with $siny = \frac{1}{\sqrt{15}}$ find the exact value of $cos2y$.	🖼 10·1 Silver Outcome 2
# My score:	

Exam Questions

Question 1:

Find the equation of the tangent at the point (3, 4) on the circle

$$x^2 + y^2 + 2x - 4y - 15 = 0$$

4

Question 2:

Find $\displaystyle\int_0^1 \frac{dx}{(3x+1)^{\frac{1}{2}}}$.

4

Question 3:

The amount A_t micrograms of a certain radioactive substance remaining after t years decreases according to the formula $A_t = A_0 e^{-0.002t}$, where A_0 is the amount present initially.

(a) If 600 micrograms are left after 1000 years, how many micrograms were present initially?

3

(b) The half-life of a substance is the time taken for the amount to decrease to half of its initial amount.

What is the half-life of this substance?

4

My score: