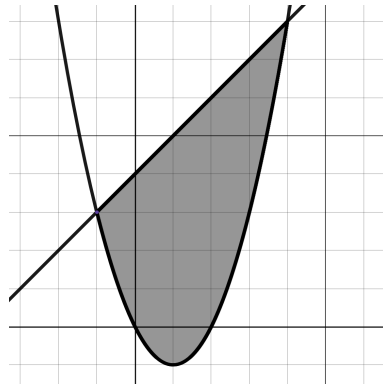


Areas between curves and Fundamental Theorem of Calculus

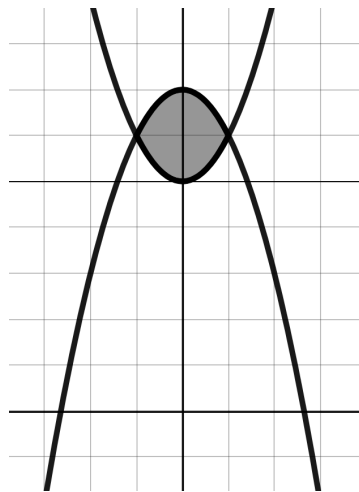
Name.....

- (1) The graph below shows the line $y = x + 4$ and the curve $y = x^2 - 2x$



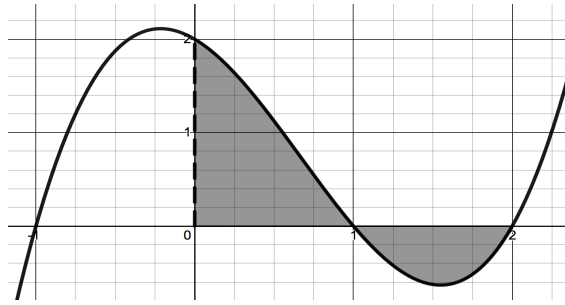
- (a) Find the x -coordinates of the intersection between the line and the curve.
- (b) Hence find the shaded area.

- (2) The graph below shows the line $y = -x^2 + 7$ and the curve $y = x^2 + 5$



Find the shaded area.

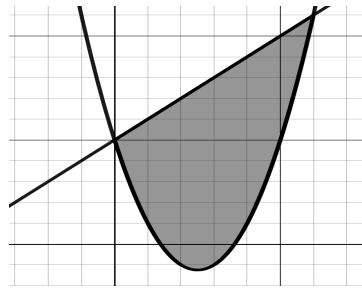
(3) A cubic graph is shown below:



(a) Show that the equation of this graph is $y = x^3 - 2x^2 - x + 2$

(b) Find the total shaded area.

(4) The graph below shows the line $y = x + 5$ and the curve $y = x^2 - 5x + 5$



Find the total shaded area

(5) Given that:

$$\int_{-1}^3 f(x) dx = 8, \quad \int_{-1}^5 f(x) dx = 2, \quad \int_{-1}^5 g(x) dx = 5,$$

Find:

(a) $\int_{-1}^5 f(x) + 2g(x) dx$ (b) $\int_3^5 f(x) dx$ (c) $\int_{-1}^5 f(x) + 2 dx,$

(d) $\int_1^5 f(x - 2) dx$