The Area Under a Curve – Questions

Q1) Find the area between the given curve, the $x-$ axis, and the limits.

a) $y = 3x^2 - 6x + 4$ $\quad x = 1, x = 4$

b) $y = 3x^2 - 12x + 12$ $\quad x = 2, x = 4$

c) $y = 4 - x^2$ $\quad x = -1.5, x = 0.5$

d) $y = -2x(x-4)^2$ $\quad x = 2, x = 5$

Q2) A curve is given by the formula $y = 10 + 3x - x^2$

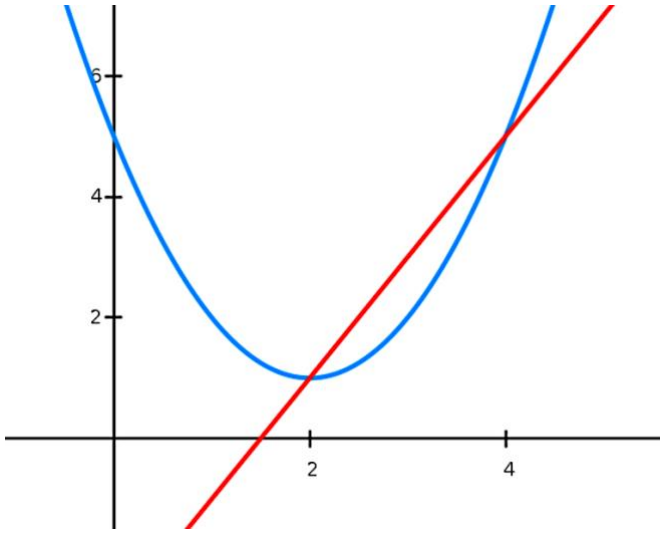
a) Determine where this curve intercepts the $x-$ axis.

b) Hence calculate the shaded area.

Q3) Find the area between the red line and the blue curve shown below.

Red: $y = 2x - 3$

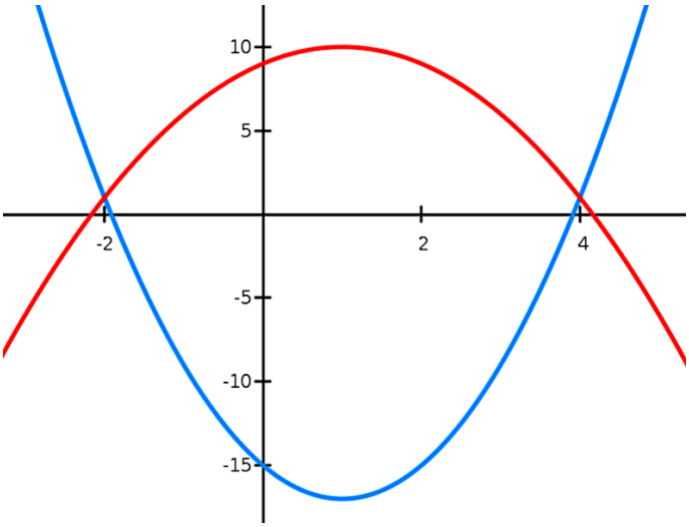
Blue: $y = x^2 - 4x + 5$



Q4) Find the area between the red and blue curves shown below.

Red: $-x^2 + 2x + 9$

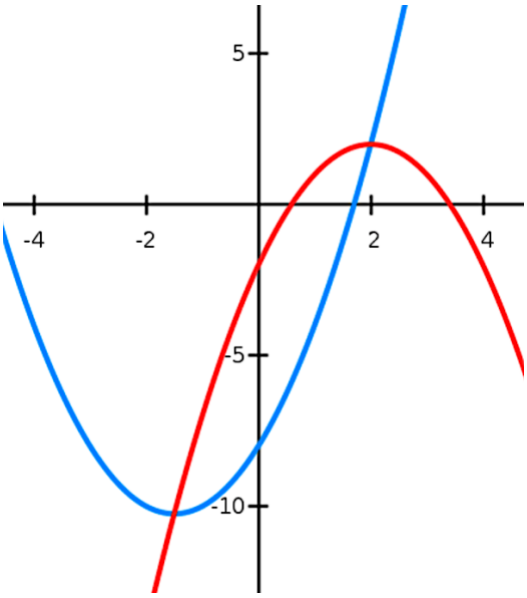
Blue: $2x^2 - 4x - 15$



Q5) Find the area between the red and blue curves shown below.

Red: $y = -x^2 + 4x - 2$

Blue: $y = x^2 + 3x - 8$



The Area Under a Curve – Solutions

Q1) a) Area $= 30\ units^2$

b) Area $= 8\ units^2$

c) Area $= 6.83\ units^2$

d) Area $= 16.5\ units^2$

Q2) a) $x = -2, x = 5$

b) Area $= 57.1\ units^2$

Q3) Area $= \frac{4}{3}\ units^2$

Q4) Area $= 108\ units^2$

Q5) Area $= 14.29\ units^2$