The method: Area under a curve

When the curve is above the x-axis, the area is the definite integral from a to b.

the area under $y = 2x^2 + x + 4$ from $x = 1$ to $x = 3$: $\frac{88}{3}$

$\text{area} = \int_1^3 (2x^2 + x + 4)\,dx$ the curve is above the x-axis here

$F(x) = \frac{2x^3}{3} + \frac{x^2}{2} + 4x$

$(\frac{69}{2}) - (\frac{31}{6}) = \frac{88}{3}$

Problems 1 and 2 worked out · Version 0A

the area under $y = 3x^2 - 2x + 9$ from $x = 2$ to $x = 4$: 62

$\text{area} = \int_2^4 (3x^2 - 2x + 9)\,dx$ the curve is above the x-axis here

$F(x) = x^3 - x^2 + 9x$

$(84) - (22) = 62$

the area under $y = 3x^2 + 4x + 2$ from $x = 1$ to $x = 5$: 180

$\text{area} = \int_1^5 (3x^2 + 4x + 2)\,dx$ the curve is above the x-axis here

$F(x) = x^3 + 2x^2 + 2x$

$(185) - (5) = 180$

Area under a curve · Version 0A

1) 62 2) 180 3) $\frac{212}{3}$ 4) 72 5) 160 6) $\frac{80}{3}$ 7) $\frac{124}{3}$

8) $\frac{160}{3}$ 9) 66 10) 24 11) 33 12) 90