Algebra & Functions (Maths 201–016)
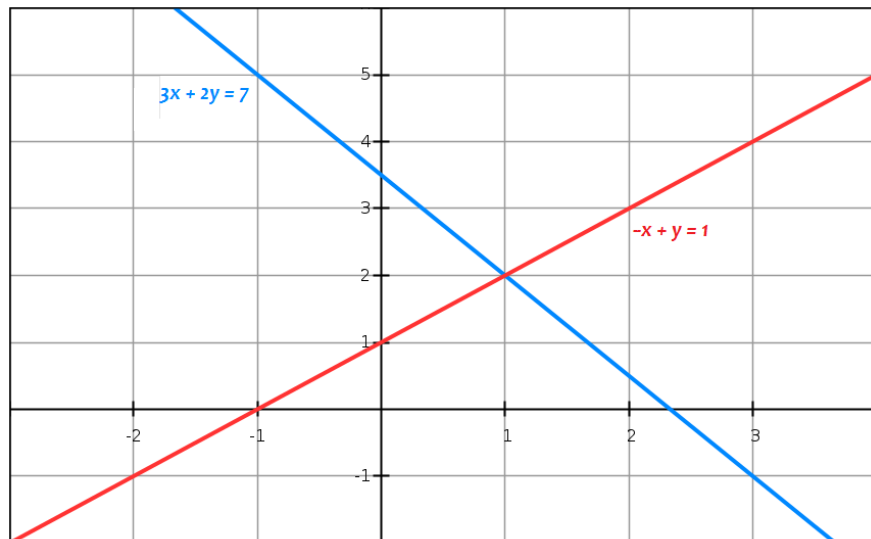
With Answers

(2)   1. Find the equation of the straight line through $(3, 2)$, perpendicular to $y = 1 - 2x$.

Answer: $y = \frac{1}{2}x + \frac{1}{2}$

(2)   2. Find the midpoint of the line connecting the points $A(-3, 11)$ and $B(1, 5)$. What is the distance between A and B?

Answer: midpoint: $(-1, 8)$, distance: $2\sqrt{13}$

(2)   3.   (a) Solve the following linear system by (a) substitution, and (b) elimination:

$$\begin{aligned} 3x + 2y &= 7 \\ -x + y &= 1 \end{aligned}$$

Answer: $(1, 2)$

(2)   (b) Sketch the graphs of both lines (in part (a)) on the same axes (*i.e.* on the same coordinate system).

Graphs:

(1)   4. Simplify $\left(\dfrac{16\, a^5\, b^{-8}\, c^7}{8\, a^{-2}\, b^{-3}\, c^5} \right)^3$ Express your answer without any negative exponents.

Answer: $\dfrac{8\, a^{21}\, c^6}{b^5}$

(1)   5. Simplify $\sqrt{45} - \sqrt{20}$.

Answer: $\sqrt{5}$

(Total: 10)