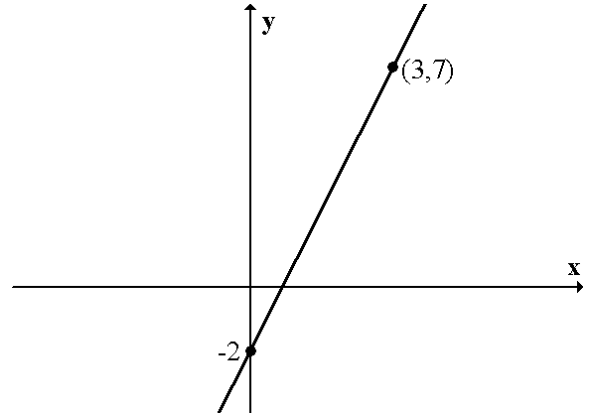


Intermediate 2 – Homework 6

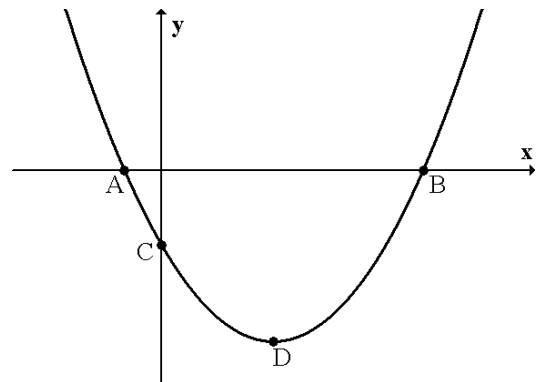
Non-calculator section:

1. Expand the brackets and simplify $(2x - y)^2$.
2. Solve $x^2 = 7x + 18$

3. (a) Find the equation of the line opposite.
(b) Does the point $(7,20)$ lie on this line?

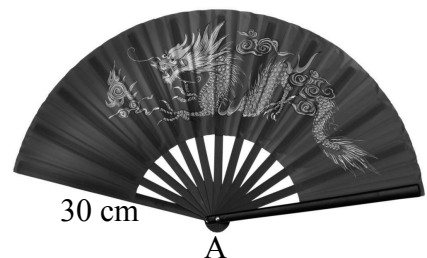


4. The parabola opposite has equation $y = (x - 2)^2 - 9$.
(a) Find the coordinates of the points A and B.
(b) Find the coordinates of C.
(c) Find the coordinates of D, the minimum point of the parabola.



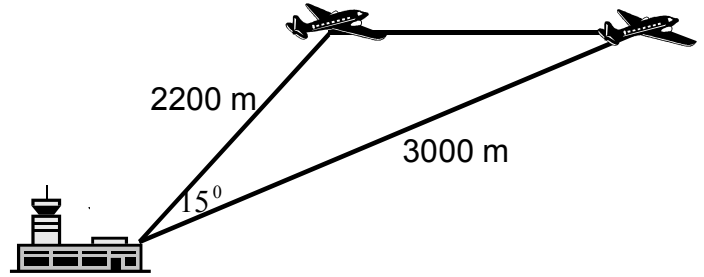
Calculator section:

5. An engineering company made a profit of £16.8 million in the year 2008. The company expect to make a profit of 4.3% each year for the next 5 years.
Calculate the expected profit in 5 years time.
6. Solve the equation $3x^2 - 6x - 1 = 0$, **giving your answers correct to 1 d.p.**
7. The diagram shows a fan in the shape of an arc of a circle with radius 30 cm. The area of the fan is 1257 cm^2 .
Calculate the size of the angle at A.



8. Solve the pair of equations $3a + 5c = 8$
 $2a - 2c = 16$

9. The diagram shows the position of an airport and two aeroplanes flying at the same height. Calculate the distance between the aeroplanes.



10. (a) The marks of 8 pupils in a French test were
45 56 67 80 66 75 56 49



Calculate the mean and standard deviation of the marks.

- (b) Due to the level of difficulty of the test each mark is scaled by having 10 added to it. Write down, without calculation, the new mean and standard deviation.

11. Solve the equation

$$4\cos 10^\circ + 5\sin x^\circ = 0 \quad 0^\circ \leq x^\circ \leq 360^\circ$$

12. Express as a single fraction

$$\frac{5}{x} + \frac{1}{x^2} \quad x \neq 0$$