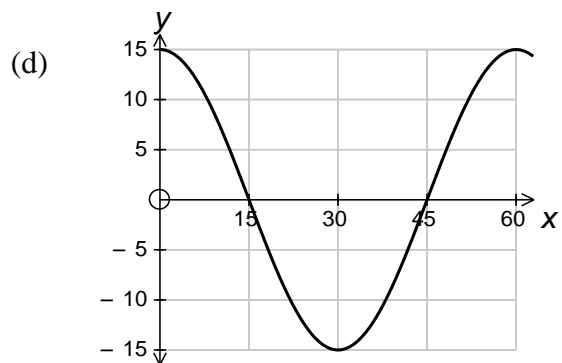
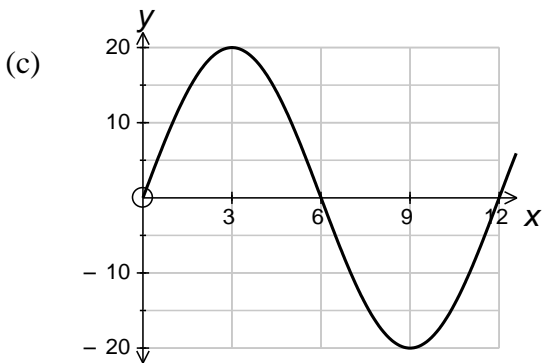
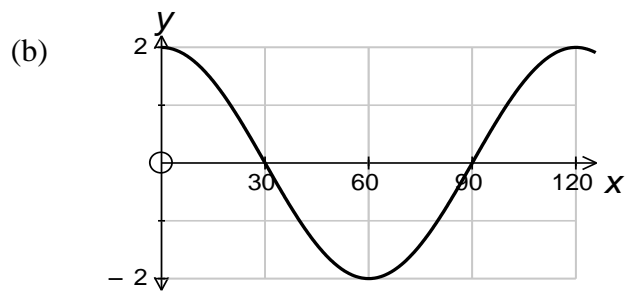
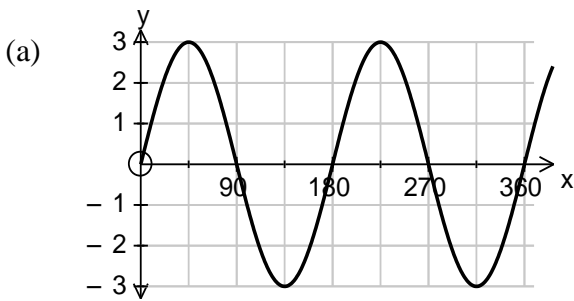


1. Find the equation of each of these Trig graphs:



2. Draw a sketch of each of these trig graphs. Your sketches should show the coordinates of the turning points and intersections with the axes.

(a) $y = 3\sin 2x^\circ, \quad 0 \leq x \leq 180.$

(b) $y = 2\sin 3x^\circ, \quad 0 \leq x \leq 120.$

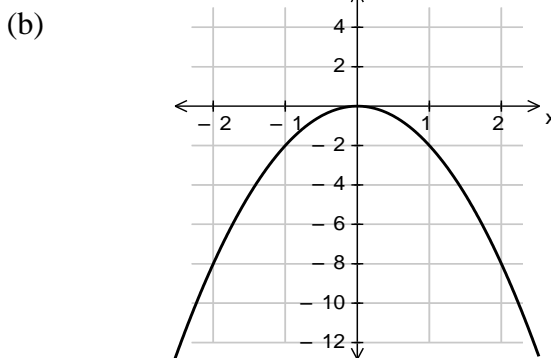
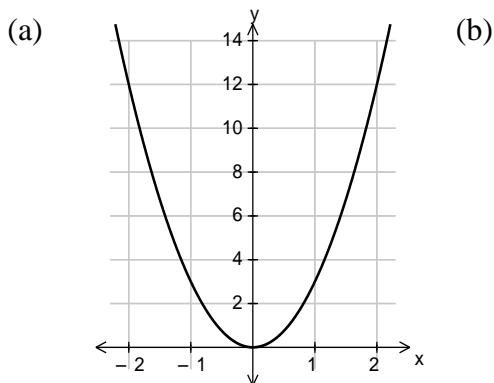
3. (a) Express $\frac{3}{\sqrt{2}}$ with a rational denominator.
 (b) Express $\frac{1}{x} - \frac{1}{x-2}$, $x \neq 0, 2$, a single fraction.
 (c) Express $\sqrt{32} - \sqrt{8}$ as a surd in its simplest form.
 (d) $Y = 5 + \frac{3}{w}$. Change the subject to w .
 (e) Solve the system of equations

$$5x + 3y = 9$$

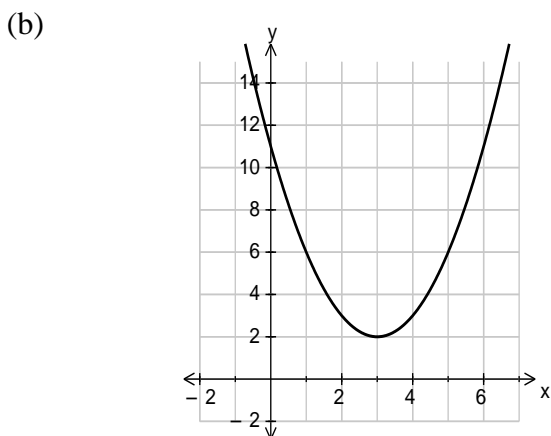
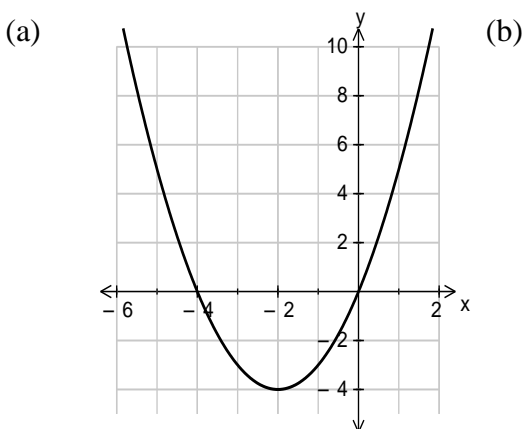
$$7x - 2y = 25$$

4. (a) Solve algebraically the equation $2x^2 + 5x - 12 = 0$.
 (b) Multiply and simplify $(3a + 5b)(5a - 4b)$.

5. Each of these diagrams shows the graph $y = ax^2$. find the value of a .



6. Each of these diagrams shows the graph of $y = (x+a)^2 + b$. Find the values of a and b .



7. The cost of hiring a car depends on the number of days the car is hired and the number of litres of petrol used.

- (a) David hired a car for 3 days and used 50 litres of petrol.
The total cost was £88.50.
Let x pounds be the cost per day of hiring a car, and y pounds be the cost of one litre of petrol.
Write down an equation in x and y which satisfies the above condition.
- (b) Anne hired the same model of car for 4 days and used 60 litres of petrol. The total cost was £113.00.
Write down a second equation in x and y which satisfies this condition.
- (c) Find the cost per day of hiring the car and the cost of one litre of petrol.

8. A cylindrical soft drinks can has height 15 cm and diameter 6.5 cm.
A new cylindrical can holds the same volume but has a reduced height of 12 cm.
Find the diameter of the new can, correct to 1 decimal place.

9. A straight line passes through the points $(4,0)$ and $(10,3)$.
Find the equation of the line in the form $y = mx + c$.