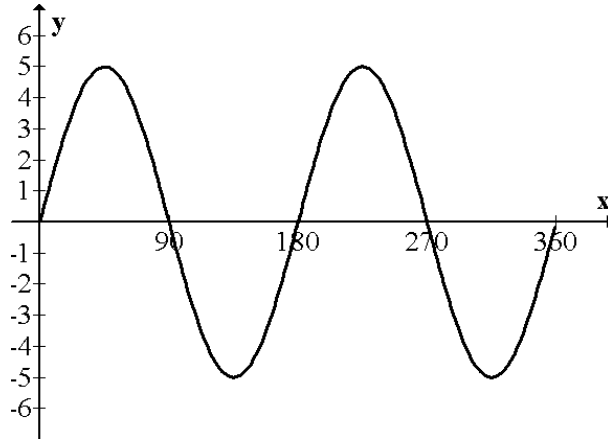


Higher Maths – Homework 1

1. The gradient of the line $3x - 5y - 2 = 0$ is

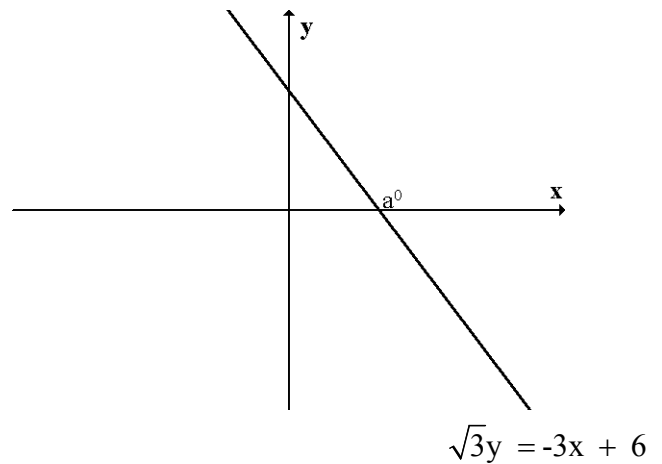
- A 3 B $\frac{3}{5}$ C $\frac{5}{3}$ D $-\frac{3}{5}$

2. The diagram below shows part of the graph of $y = a \sin bx$.
The values of a and b are



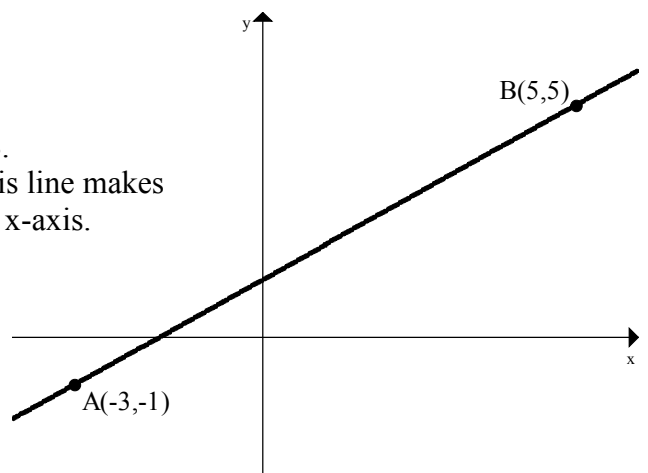
- A $a = 5, b = 1$ B $a = 5, b = 2$ C $a = 2, b = 5$ D $a = 1, b = 5$

3. The diagram shows part of the line
 $\sqrt{3}y = -3x + 6$.
Angle a° is equal to



- A 30° B 150° C 120° D 60°

4. A and B are points $(-3, -1)$ and $(5, 5)$.
(a) Find the equation of the line AB.
(b) Calculate the size of the angle this line makes with the positive direction of the x -axis.



5. (a) Prove that the points P(-2,3), Q(-1,2) and R(7,-6) are collinear.
(b) The point S(-8,a) is on the same straight line as P, Q and R. Find a.
6. Find the equation of the line which is parallel to the line with equation $2x + 3y = 5$ and which passes through the point (2,-1).
7. Solve the equation $\sqrt{2}\cos x + 2 = 1$, $0 \leq x \leq 360$.
8. Two points are A(-3,6) and B(5,2).
- (a) Find the equation of the perpendicular bisector of AB.
(b) Find where this line crosses the x-axis.
9. The point A has coordinates (7,4). The straight lines with equations $x + 3y + 1 = 0$ and $2x + 5y = 0$ intersect at B.
- (a) Find the coordinates of B and hence the gradient of AB.
(b) Show that AB is perpendicular to only one of these two lines.
10. A is the point (2,-3), B is (6,-2) and C is (0,4).
- (a) Find the equation of the altitude AD.
(b) Find the equation of the median BE.
(c) Hence find the coordinates of F, the point of intersection of AD and BE.