The Equation of a Straight Line – www.m4ths.com – Steve Blades

(1) Find the gradient through each set of points
(a) $(2,3)$ *and* $(-3,6)$
(b) $(\frac{2}{5},2)$ *and* $(3,-1)$
(c) (a,c) *and* (b,d)

(2) Write down the gradient and y *intercept of each line*
(a) $y=-3x+8$
(b) $y=4+x$
(c) $6x+7y-5=0$

(3) Find where each line crosses the coordinate axes
(a) $y=10x-8$
(b) $6x+7y-5=0$

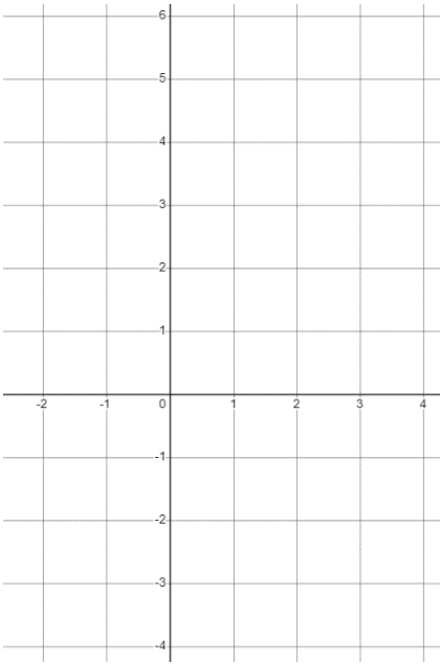
(4) State the 3 conditions that allow you to find the equation of a straight line.

(5) Find the equation of a straight line that has:
(a) gradient 6, y *intercept of -2*
(b) gradient -4, y *intercept of 5*

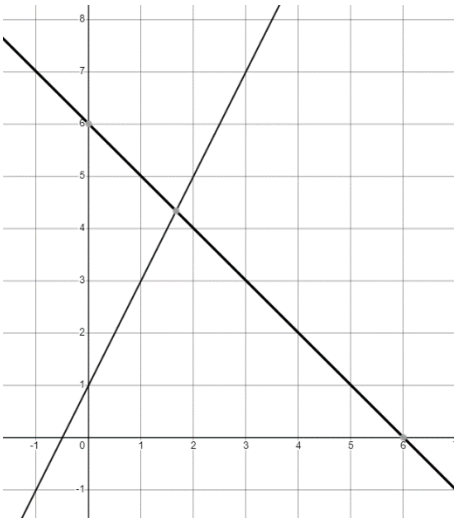
(6) Find the equation of the line that:
(a) Has gradient 5 and passes through $(2,3)$
(b) Has gradient -4 and passes through $(5,-7)$

(7) Find the equation of the line that passes through:
(a) $(6,7)$ *and (9,19)*
(b) $(-4,5)$ *and (3,19)*
(c) $(2,-3)$ *and (4,-9)*
(d) $(0.5,-4)$ *and (5, 9)*

(8) Draw the graph of each on the small grid given:
(a) $y=2x+1$
(b) $x+y=3$
(c) $2x-3y+6=0$



(9) Find the equation of each line below

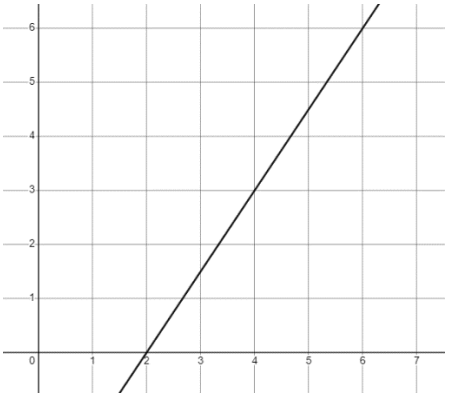


(10) A line passes through the points $(7,9)$ *and* $(10,5)$*. Find where the line crosses the coordinate axes.*

(11) The line with equation $y=4+x$ *meets the coordinate axes at A and B. Find the area of* ΔAOB *where O is the origin.*

(12) The line $x+y=8$ *crosses the coordinate axes at P and Q. Find the length PQ.*

(13) By choosing 2 points on the graph given find an equation for the graph



(14) The line with gradient -3 and passes through the point (4,2) meets the line with equation $x+y=6$ *at the point P.*
(a) Use simultaneous equations to find the coordinates of P.
The two lines cross the y *axis at the points Q and R respectively. Find the area of triangle QPR. (Sketching this will really help!)*

(15) Find the coordinates of where the lines $y=5x-1$ *and* $y=3-2x$ *meet.*

(16) The lines $x=6$ *and* $y=4$ *intersect the line with the equation* $x=8-y$ *at the points R and Q. Find the area of the trapezium OPQR where O is the origin.*

(17) The line $y=px+q$ *where* $p>0$ *and* $q>0$ *crosses the coordinate axes at A and B.*
(a) Find the coordinates of A and B
(b) Find the area of the triangle AOB where O is the origin in terms of p *and* q*.*
(c) Find the length of AB in terms of p *and* q*.*
(d) Given that (3,6) is on the line, show that $3p+q-6=0$

(18) Find where the graph of $px+qy+r=0$ *crosses the coordinate axes. Give your answers in terms of* p,q *and* r*.*