**Equation of a Straight Line GREEN**

1. Write the gradient and the y-intercept of each of the linear equations below:

 a) y = 3x + 4 b) y = ½x – 2

 c) y = 4 – x d) y = $\frac{6x+3}{2}$

 e) 2x + 3y – 6 = 0 f) 8x – 2y + 4 = 0

2. Find the equation of the line with gradient m that passes through the point (x1, y1):

 a) m = 2 and (x1, y1) = (2, 5) b) m = 3 and (x1, y1) = (-2, 1)

 c) m = -1 and (x1, y1) = (3, -6) d) m = -4 and (x1, y1) = (-2, -3)

 e) m = ½ and (x1, y1) = (-4, 10) f) m = -2/3 and (x1, y1) = (-6, -1)

3. Find the equation of the line that passes through these pairs of points:

 a) (2, 4) and (3, 8) b) (0, 2) and (3, 5)

 c) (-2, 0) and (2,8) d) (5, -3) and (7, 5)

 e) (-1, -5) and (-3, 3) f) (1/3, 2/5) and (2/3, 4/5)

4. The line joining (3, -5) to (6, a) has a gradient 4. Work out the value of a.

5. Show that the points A(2, 3), B(4, 4) and C(10, 7) can be joined by a straight line.

6. Find the equation of the line which passes through the points A(7, 2) and B(9, -8). Give your answer in the form ax + by + c = 0.

7. The vertices of the triangle ABC have coordinates A(3, 5), B(-2, 0) and C(4, -1). Find the equations of the sides of the triangle.

8. The straight line l passes through (a, 4) and (3a, 3). An equation of l is x + 6y + c = 0. Find the value of a and the value of c.

9. The line that passes through the coordinates (-3, -5) and (4, 9) meets the y-axis at the point G. Work out the coordinates of the point G.

10. The lines y = x – 5 and y = 3x – 13 intersect at the point S. The point T has coordinates (-4, 2). Find the equation of the line that passes through the points S and T.

**Equation of a Straight Line AMBER**

1. Write the gradient and the y-intercept of each of the linear equations below:

 a) y = 3x + 4 b) y = ½x – 2

 c) y = 4 – x d) y = $\frac{6x+3}{2}$

 e) 2x + 3y – 6 = 0 f) 8x – 2y + 4 = 0

2. Find the equation of the line with gradient m that passes through the point (x1, y1):

Use the formula y – y1 = m(x – x1) to find the equation of the line

 a) m = 2 and (x1, y1) = (2, 5) b) m = 3 and (x1, y1) = (-2, 1)

 c) m = -1 and (x1, y1) = (3, -6) d) m = -4 and (x1, y1) = (-2, -3)

 e) m = ½ and (x1, y1) = (-4, 10) f) m = -2/3 and (x1, y1) = (-6, -1)

3. Find the equation of the line that passes through these pairs of points:

Use the formula y2 – y1 to calculate the gradient, then y – y1 = m(x – x1) to find the equation of the line

 x2 – x1

 a) (2, 4) and (3, 8) b) (0, 2) and (3, 5)

 c) (-2, 0) and (2,8) d) (5, -3) and (7, 5)

 e) (-1, -5) and (-3, 3) f) (1/3, 2/5) and (2/3, 4/5)

4. The line joining (3, -5) to (6, a) has a gradient 4. Work out the value of a.

Use the formula y2 – y1 = 4

 x2 – x1

5. Show that the points A(2, 3), B(4, 4) and C(10, 7) can be joined by a straight line.

Use the formula y2 – y1 to calculate gradient AB and BC

 x2 – x1

6. Find the equation of the line which passes through the points A(7, 2) and B(9, -8). Give your answer in the form ax + by + c = 0.

You will have to rearrange your answer

7. The vertices of the triangle ABC have coordinates A(3, 5), B(-2, 0) and C(4, -1). Find the equations of the sides of the triangle.

8. The straight line l passes through (a, 4) and (3a, 3). An equation of l is x + 6y + c = 0. Find the value of a and the value of c.

9. The line that passes through the coordinates (-3, -5) and (4, 9) meets the y-axis at the point G. Work out the coordinates of the point G.

10. The lines y = x – 5 and y = 3x – 13 intersect at the point S. The point T has coordinates (-4, 2). Find the equation of the line that passes through the points S and T.

**Equation of a Straight Line RED**

1. Write the gradient and the y-intercept of each of the linear equations below:

y = mx + c where m is the gradient and c is the y-intercept

 a) y = 3x + 4 b) y = ½x – 2

 c) y = 4 – x d) y = $\frac{6x+3}{2}$

 e) 2x + 3y – 6 = 0 f) 8x – 2y + 4 = 0

2. Find the equation of the line with gradient m that passes through the point (x1, y1):

Use the formula y – y1 = m(x – x1) to find the equation of the line

 a) m = 2 and (x1, y1) = (2, 5) b) m = 3 and (x1, y1) = (-2, 1)

 y – 5 = 2(x – 2)

 y =

 c) m = -1 and (x1, y1) = (3, -6) d) m = -4 and (x1, y1) = (-2, -3)

 e) m = ½ and (x1, y1) = (-4, 10) f) m = -2/3 and (x1, y1) = (-6, -1)

3. Find the equation of the line that passes through these pairs of points:

Use the formula y2 – y1 to calculate the gradient, then y – y1 = m(x – x1) to find the equation of the line

 x2 – x1

 a) (2, 4) and (3, 8) b) (0, 2) and (3, 5)

 m = 8 – 4 =

 3 – 2

 y – 4 = \_\_\_(x – 2)

 y =

 c) (-2, 0) and (2,8) d) (5, -3) and (7, 5)

 e) (-1, -5) and (-3, 3) f) (1/3, 2/5) and (2/3, 4/5)

4. The line joining (3, -5) to (6, a) has a gradient 4. Work out the value of a.

Use the formula y2 – y1 = 4

 x2 – x1

 4 = a – -5

Rearrange and solve to find a

 6 – 3

5. Show that the points A(2, 3), B(4, 4) and C(10, 7) can be joined by a straight line.

Use the formula y2 – y1 to calculate gradient AB and BC

 x2 – x1

6. Find the equation of the line which passes through the points A(7, 2) and B(9, -8). Give your answer in the form ax + by + c = 0.

You will have to rearrange your answer

7. The vertices of the triangle ABC have coordinates A(3, 5), B(-2, 0) and C(4, -1). Find the equations of the sides of the triangle.

8. The straight line l passes through (a, 4) and (3a, 3). An equation of l is x + 6y + c = 0. Find the value of a and the value of c.

9. The line that passes through the coordinates (-3, -5) and (4, 9) meets the y-axis at the point G. Work out the coordinates of the point G.

10. The lines y = x – 5 and y = 3x – 13 intersect at the point S. The point T has coordinates (-4, 2). Find the equation of the line that passes through the points S and T.