Loughborough University

Week 4: The Straight Line and Linear Equations

Try these exercises now.

1. State the vertical intercept and the gradient of each of the following lines:

    (a) $y = 3x + 3$
    (b) $y = 2x - 3$
    (c) $y = 4$
    (d) $y = 1 - x$
    (e) $y = -5x$

2. Sketch the lines from question 1. Which has the steepest gradient? Where do lines a. and b. intersect?

3. Which of these are straight lines?

    (a) $2x + 3y = 4$
    (b) $y = 3x^2 + 5$
    (c) $4xy + 2 = 5$
    (d) $x = 3$
    (e) $x + y = 1.2$
    (f) $x^2 - y^2 = 2$

4. What is the gradient of the straight line through (1,2) and (3,5)?

5. What is the equation of the straight line in question 4?

6. What is the distance between the points in question 4?

7. Solve these equations:

    (a) $3x + 4 = 4x + 3$
    (b) $5m - 3 = 5(m - 3) + 2m$
    (c) $\frac{5}{m} = \frac{2}{m+1}$
    (d) $\frac{4x+5}{6} - \frac{2x-1}{3} = x$

8. If $a = 2$ find b if $54 = a - 4b$.