

Line l_1 is perpendicular to line l_2

Line l_3 has gradient 2

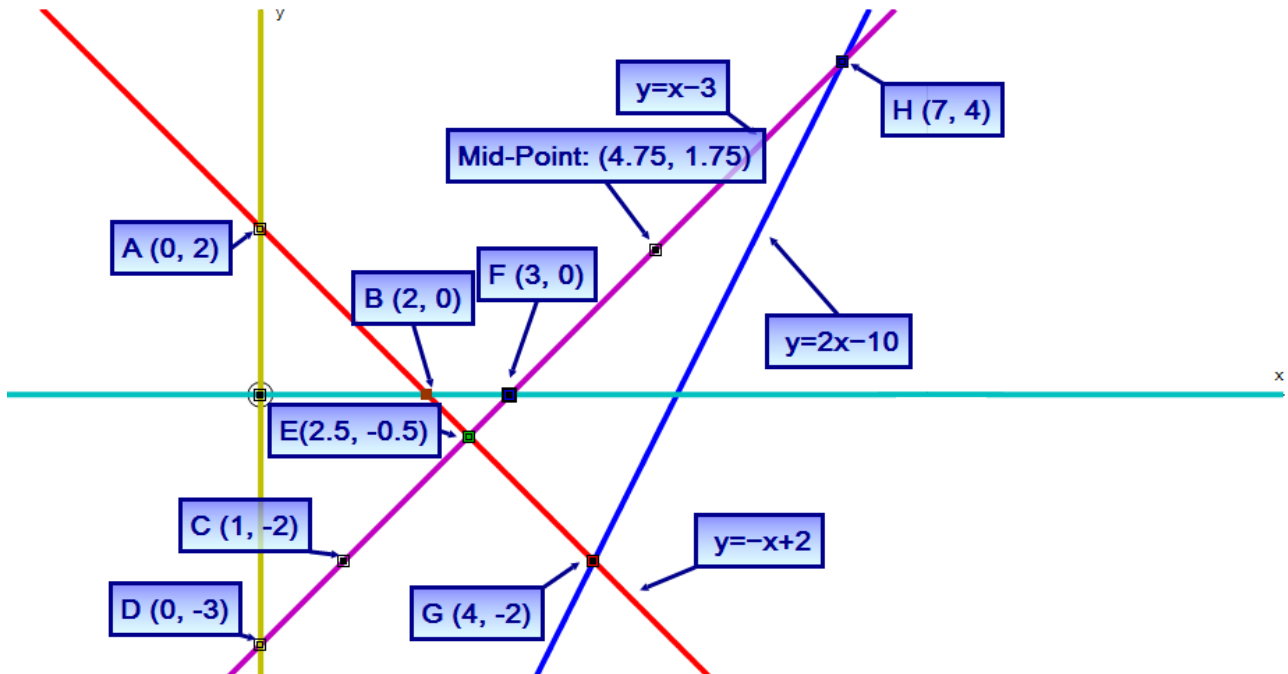
A is at $(0,2)$, B is at $(2,0)$, C is at $(1,-2)$ and G is at $(4,b)$

Find, in no particular order:

- a. the equation of line l_1
- b. the equation of line l_2
- c. the equation of line l_3
- d. the area of triangle EBF
- e. the area of triangle ADE
- f. the length of GH
- g. the midpoint of the line segment EH

Teacher notes and solutions

This activity is designed for pairs of students. The tasks can be completed in any order, but some tasks do require others to have been done first. The students will have to decide the most appropriate route through the activity.



- The area of triangle EBF is $\frac{1}{4}$ units squared.
- The area of triangle ADE is $\frac{25}{4}$ units squared.
- The length of GH is $3\sqrt{5}$ units.