# MTH 202 - Quiz 9

20 November 2015

Name: _____

Show all your work to receive full credit on the following problems; carefully organize your solutions so that the work is clear. No calculators or other electronic devices are allowed on this quiz.

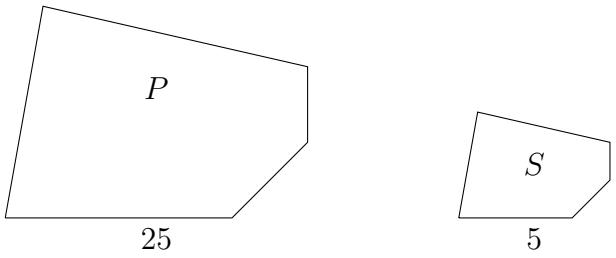
1. (2+2=4 points) Write the equations of the following lines in the stated form:

   (a) A line through the points $(-1, 2)$ and $(1, 1)$

   (b) A line through the origin and the point $(5, 4)$

2. (3 points) Show that a line passing through $(7, 2)$ and $(5, 5)$ is parallel to a line through $(3, 1)$ and $(1, 4)$

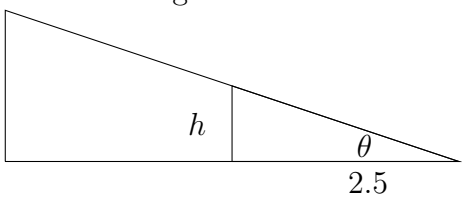
3. (6 points) Find the area of the shape $P$ on the left given it is similar to the original shape $S$ on the right, which has an area of 12 square units.



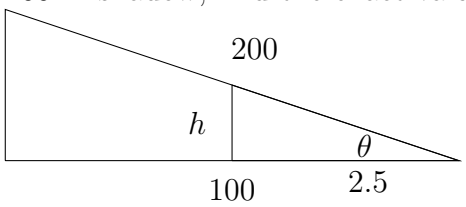
4. ((6+2)+4=12 points) Find the following in terms of trigonometric functions of the angle.

(a) Find the height of a lamppost with a shadow that is 2.5 meters long.

(i) Find the height in terms of $\theta$.




(ii) If the top of a nearby building is 200 m from the tip of the shadow and itself gives off a 100 m shadow, find the exact values of $\theta$ and $h$.




(b) Find the length of a ladder if its top rests 4 m above the ground and it makes an angle of 30° with the ground.