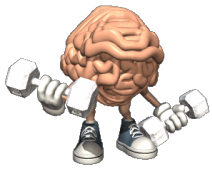
Warm Up



1a) What is the slope of a line that passes through the points (14, -18) and (8, -20)?

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-20 - (-18)}{8 - 14} = \frac{-2}{-6} = \frac{2}{6} = \frac{1}{3}$

b) What is the slope of a line perpendicular to a line that passes through the points (5, 3) and (-12, 6)?

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 3}{-12 - 5} = \frac{3}{-17}$

$m_{\perp} = \frac{17}{3}$

$S(-4, -1)$ $T(-1, 5)$ and

$m_{ST} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - (-1)}{-1 - (-4)} = \frac{6}{3} = \boxed{2}$

$U(1, 1)$ $V(5, -1)$

$m_{UV} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 1}{5 - 1} = \frac{-2}{4} = \boxed{-\frac{1}{2}}$

3. a) $\frac{4}{5}$

8. a) AB (x_1, y_1) $(-5, -2)$ (x_2, y_2) $(1, 5)$

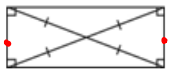
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - (-2)}{1 - (-5)}$$

CD (x_1, y_1) $(-1, -4)$ (x_2, y_2) $(4, 1)$ $= \frac{7}{6}$

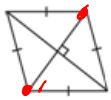
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - (-4)}{4 - (-1)} = \frac{5}{5} = 1$$

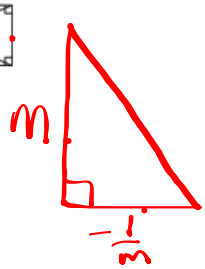
Activate Prior Learning:
Properties of Quadrilaterals

A **rectangle** is a parallelogram with 4 right angles.
It has all the properties of a parallelogram and its diagonals are equal.

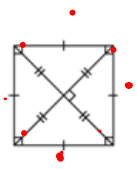


A **rhombus** is a parallelogram with 4 equal sides.
It has all the properties of a parallelogram and its diagonals are perpendicular.

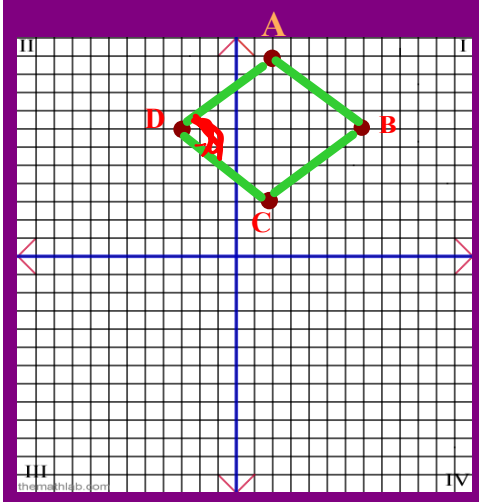




A **square** is a parallelogram with 4 equal sides and 4 right angles.
A square has all the properties of a parallelogram, a rectangle, and a rhombus.



Determine whether or not the following figure is a rectangle.



A $(2, 11)$ B $(7, 7)$ C $(2, 3)$ D $(-3, 7)$

$M_{AD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 11}{-3 - 2} = \frac{-4}{-5} = \frac{4}{5}$

$M_{CD} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 3}{-3 - 2} = \frac{4}{-5}$

Attachments

Parallel.doc

Perpendicular and Parallel lines.docx