

Name : _____

Parallel and Perpendicular Lines

Sheet 1

- 1) Equation of a line m is $y = 3x + 5$. Slope of a line n is 3. Prove that the lines are parallel.

- 2) Equation of \overleftrightarrow{AB} is $5y - 15x = -20$. Equation of \overleftrightarrow{CD} is $y = -\frac{1}{3}x + 15$. Prove that $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$.

- 3) Equation of the line p is $y = 2x + 1$. Equation of the line q is $y = -\frac{1}{2}x + 3$. Are the lines parallel or perpendicular? Justify your answer.

PREVIEW
Gain complete access to the largest collection of worksheets in all subjects!

Members, please log in to download this worksheet.

Not a member? Please sign up to gain complete access.

- 4) Equation of line p is $y = 3x + 2$. Equation of line q is $y = -\frac{1}{3}x + 4$. Are the lines parallel or perpendicular? Justify your answer.

- 5) Equation of two lines are $y + 6x = -3$ and $18y = 3x + 13$. Are the lines parallel? Justify your answer.

Parallel and Perpendicular Lines

- 1) Equation of a line m is $y = 3x + 5$. Slope of a line n is 3. Prove that the lines are parallel.

slope of $m = 3$; slope of $n = 3$

slope of $m = \text{slope of } n$

The lines m and n are parallel.

- 2) Equation of \overleftrightarrow{AB} is $5y - 15x = -20$. Equation of \overleftrightarrow{CD} is $y = -\frac{1}{3}x + 15$. Prove that $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$.

slope of $\overleftrightarrow{AB} = 3$; slope of $\overleftrightarrow{CD} = -\frac{1}{3}$

slope of $\overleftrightarrow{AB} \times$

\overleftrightarrow{CD} is perpendicular

- 3) Equation of the line p is $3y + 4x = 12$. Equation of the line q is $3y + 4x = 12$. Are the lines parallel or perpendicular? Justify your answer.

slope of $3y + 4x = 12$ is $-\frac{3}{4}$

slope of $3y + 4x = 12$ is $-\frac{3}{4}$

As the slopes are equal, the lines are parallel.

- 4) Equation of line p is $3y + 4x = 12$. Equation of line q is $3y + 4x = 12$. Are the lines parallel or perpendicular? Justify your answer.

slope of $p = -\frac{3}{4}$

slope of $q = \frac{4}{3}$

The lines p and q are perpendicular.

- 5) Equation of two lines are $y + 6x = -3$ and $18y = 3x + 13$. Are the lines parallel? Justify your answer.

slope of $y + 6x = -3$ is $-\frac{1}{6}$

slope of $3y = -18x + 13$ is $\frac{1}{6}$

No. As the slopes are not equal, the lines are not parallel.

PREVIEW

Gain complete access to the largest collection of worksheets in all subjects!

Members, please log in to download this worksheet.

Not a member? Please sign up to gain complete access.

www.mathworksheets4kids.com