

Parallel and Perpendicular Lines *fluency* ANSWERS



Write the gradient of a line perpendicular to

1 $y = 3x + 1$ $-\frac{1}{3}$

2 $y = -2x + 5$ 0.5

3 $y = \frac{x}{4} - 1$ -4

4 $y = 5 - x$ 1

5 $y = 0.5x + 2$ -2

6 $3y = 2x - 6$ -1.5



Are the lines parallel, perpendicular or neither?

7 $y = 2x + 1$ and $y = 2x - 3$ *parallel*

8 $y = 3x$ and $y = -\frac{x}{3} + 4$ *perpendicular*

9 $y = 4x - 1$ and $y = -4x + 2$ *neither*

10 $y = 4x$ and $4y = 1 - x$ *perpendicular*

11 $2y = 6x + 1$ and $y = 3x - 8$ *parallel*

12 $y = -5x$ and $5y = x + 2$ *perpendicular*



Find the equation of the line perpendicular to the given line, through the point

13 $y = 2x + 1$, $(4, 3)$ $y = -\frac{1}{2}x + 5$

14 $y = -3x + 2$, $(6, 1)$ $y = \frac{1}{3}x - 1$

15 $y = \frac{x}{2}$, $(1, 5)$ $y = -2x + 7$

16 $y = x - 4$, $(2, 0)$ $y = -x + 2$

17 $y = -\frac{x}{4} + 3$, $(-1, 2)$ $y = 4x + 6$

18 $y = 5x + 1$, $(10, 0)$ $y = -\frac{1}{5}x + 2$



Rearrange first. Find the equation of the line perpendicular to it through the point.

19 $2x + y = 6$, $(2, 1)$ $y = \frac{1}{2}x$

20 $x + 3y = 9$, $(1, 4)$ $y = 3x + 1$

21 $4x - 2y = 5$, $(2, 3)$ $y = -\frac{1}{2}x + 4$

22 $y - 2x = 7$, $(4, -1)$ $y = -\frac{1}{2}x + 1$

23 $3x + 4y = 12$, $(3, 2)$ $y = \frac{4}{3}x - 2$

24 $x - 5y = 10$, $(0, -2)$ $y = -5x - 2$



Find the equation of the perpendicular bisector of AB

25 $A(0, 0), B(4, 2)$ $y = -2x + 5$

26 $A(2, 1), B(6, 3)$ $y = -2x + 10$

27 $A(1, 5), B(5, 1)$ $y = x$

28 $A(-2, 3), B(4, 3)$ $x = 1$

29 $A(0, 4), B(2, 0)$ $y = \frac{1}{2}x + \frac{3}{2}$

30 $A(-3, -1), B(1, 7)$ $y = -\frac{1}{2}x + \frac{5}{2}$