Name: Key Date: Dec. 14

Section 7.4 Extra Practice

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1. For a line with each slope, state the slope of a line parallel to it. What is the slope of a line perpendicular to it?

a) $m = 3$

$m=3$; $m=\frac{-1}{3}$ ✓ 2

b) $m = 0.4$

$m=2/5$ $m=-5/2$ ✓✓ 2

2. State the slopes of lines that are parallel to and lines that are perpendicular to each linear equation.

a) $y = 2x - 5$

$m=2$; $m=-\frac{1}{2}$ ✓✓ 2

b) $2x + 5y - 1 = 0 \Rightarrow$ $2x-1=-5y$

$m=-2/5$; $m=5/2$ ✓✓ $-2/5x+1/5=y$ 2

3. For each pair of slopes, what is the value of k if the lines are parallel? What is the value of k if the lines are perpendicular?

a) $\frac{k}{3}, 4$ // $k=12$; $\frac{k}{3}=\frac{-1}{4}$ ✓ 2

⊥ $k=-0.75$ ✓

b) $\frac{3}{5}, \frac{k}{15}$ // $k=9$

⊥ $\frac{-5}{3}=\frac{k}{15}$ ✓ 2 $k=-25$ ✓

4. Identify whether the lines in each pair are parallel, perpendicular, or neither. Explain how you know.

a) $2x + 4y = 5$ and $-2x - 4y = 1$

$2x+4y-5=0$ $m=\frac{-2}{4}=\frac{-1}{2}$ 2

$4y=-2x+5$ ✓ $-2x-1=4y$

$y=-1/2x+5/4$ ✓ $-1/2x-1/4=y$

$m=$ parallel ✓ 1 same slopes

b) $2x + 3y - 6 = 0$ and $3x - 2y - 8 = 0$

$2x-6=-3y$ $3x-8=2y$

$-\frac{2}{3}x+2=y$ $\frac{3}{2}x-4=y$

1 2

Perpendicular — reciprocals 1

5. Determine an equation of a line in the form $y = mx + b$ that is parallel to the line and passes through the given point.

a) $y = 4x - 3$, $(2, -3)$ $y=4x+b$ $y=4x-11$ ✓

$-3=4(2)+b$

$b=-11$ ✓ 2

6. Write an equation of a line in the form $y = mx + b$ that is perpendicular to the line and passes through the given point.

a) $y = 3x + 1$, $(1, 4)$ $y=-\frac{1}{3}x+b$ ✓

$4=-\frac{1}{3}(1)+b$ 2 $b=4\frac{1}{3}$ or $\frac{13}{3}$

$y=-\frac{1}{3}x+4\frac{1}{3}$ ✓

7. Determine an equation in general form, $Ax + By + C = 0$, representing each line.

a) parallel to the x-axis and through $(-3, 5)$

$y=5$ ✓ $y-5=0$

b) perpendicular to the x-axis and through $(1, 7)$

$x=1$ $x-1=0$ ✓

8. The four vertices of a quadrilateral are A(−6, 1), B(−1, 3), C(3, −7), and D(−2, −9).

a) Is the quadrilateral a rectangle, a parallelogram, or a trapezoid? Justify your answer.

$\frac{2}{5}$ m AB $\frac{+2}{-5}$ m DC

$\frac{-10}{4}=\frac{-5}{2}$ $\frac{-10}{4}=\frac{-5}{2}$

$-1+-6$

$-9+7$

$-2-3$

AB = DC

AD = BC

AB ⊥ BC

AD ⊥ DC

rectangle!

AB ∥ CD are parallel

AD ∥ BC "

AB and AD are ⊥

BC and DC are ⊥