

Quiz-4: 14.1 Angles Formed by Intersecting Lines

Quiz-4

Help

1

Find the equation of the line described.

Perpendicular to $y = 5x + 4$; passing through the point $(6, 3)$.

Perpendicular lines have opposite reciprocal slope, so $m = \frac{-1}{5}$.

$$(y - y_1) = m(x - x_1) \text{ Use point-slope form.}$$

$$(y - 3) = \frac{-1}{5}(x - 6) \text{ Substitute for } m, x_1, \text{ and } y_1.$$

$$y - 3 = \frac{-x}{5} + \frac{6}{5} \text{ Distribute.}$$

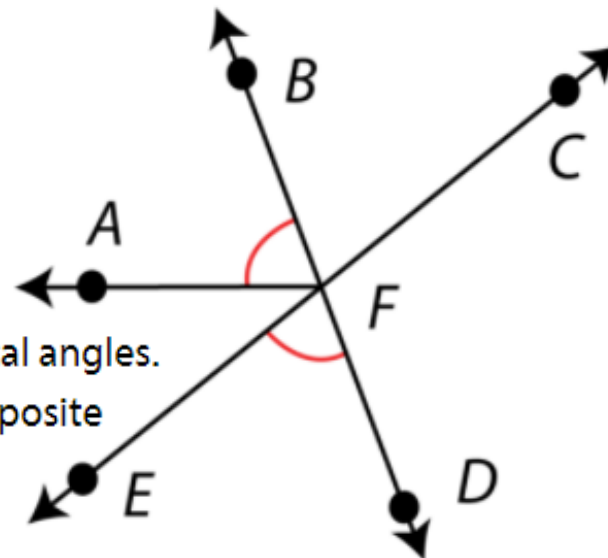
$$y = \frac{-x}{5} + \frac{21}{5} \text{ Solve for } y.$$

2

Use this diagram and information given to select the correct classification for each angle pair.

Given: $m\angle AFB = m\angle EFD = 30^\circ$

Points B, F, D and points E, F, C are collinear.



Note:

In the intersection of two lines, opposite pairs make vertical angles.

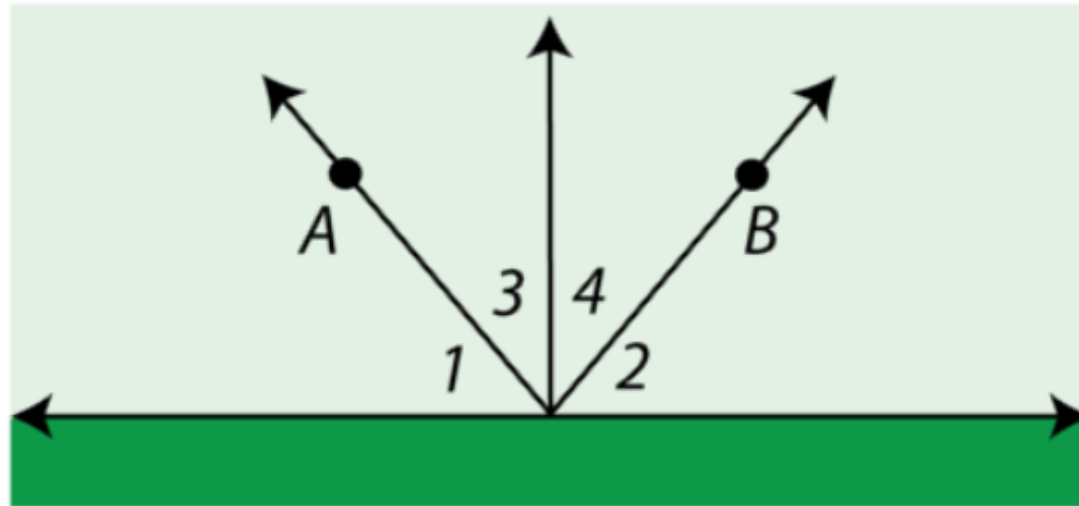
A pair of adjacent angles whose noncommon sides are opposite rays make a linear pair,

Drag and drop each pair of angles into the correct category to indicate whether the pair of angles is a pair of vertical angles, a linear pair of angles, or neither.

Vertical Angles	Linear Pair	Neither
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">$\angle BFC$ and $\angle EFD$</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">$\angle AFE$ and $\angle AFC$</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">$\angle AFB$ and $\angle EFD$</div>
<div style="border: 1px solid black; padding: 5px;">$\angle BFE$ and $\angle CFD$</div>	<div style="border: 1px solid black; padding: 5px;">$\angle BFE$ and $\angle BFC$</div>	<div style="border: 1px solid black; padding: 5px;">$\angle AFD$ and $\angle BFC$</div>

3

A sprinkler swings back and forth between A and B in such a way that $\angle 1 \cong \angle 2$, $\angle 1$ and $\angle 3$ are complementary, and $\angle 2$ and $\angle 4$ are complementary.



If $m\angle 1 = 55.5^\circ$, find $m\angle 2$, $m\angle 3$, and $m\angle 4$.

The measure of $\angle 2$ is $^\circ$. $\angle 1 \cong \angle 2$
 $m\angle 2 = 55.5^\circ$

The measure of $\angle 3$ is $^\circ$. $\angle 1$ and $\angle 3$ are complementary.

The measure of $\angle 4$ is $^\circ$. $m\angle 1 + m\angle 3 = 90^\circ$
 $\quad \quad \quad - 55.5^\circ$
 $m\angle 3 = 34.5^\circ$

4

The measures of two vertical angles are given by the expressions $(x + 12)^\circ$ and $(2x - 4)^\circ$.

Find the value of x . What is the measure of each angle?

The value of x is .

The measure of each angle is °.

Vertical angles are congruent.

$$x + 12 = 2x - 4 \quad \text{Set vertical angles equal.}$$

$$x + 16 = 2x \quad \text{Add 4 to both sides.}$$

$$16 = x \quad \text{Solve for } x.$$

Find the measure of each angle.

$$(x + 12)^\circ = (16 + 12)^\circ = 28^\circ$$

5

You can represent the measures of an angle and its complement as x° and $(90 - x)^\circ$. Similarly, you can represent the measures of an angle and its supplement as x° and $(180 - x)^\circ$. Use these expressions to find the measures of the angles described.

The measure of the supplement of an angle is five times the measure of its complement.

The measure of the angle is 67.5° , the measure of its complement is 22.5° , and the measure of its supplement is 112.5° .

$$180 - x = 5(90 - x)$$

$$180 - x = 450 - 5x$$

$$4x = 270 \quad \text{Add } 5x \text{ to both sides.}$$

$$x = 67.5 \quad \text{Solve for } x.$$

$$90 - x = 22.5 \quad \text{Find the complement.}$$

$$180 - x = 112.5 \quad \text{Find the supplement.}$$