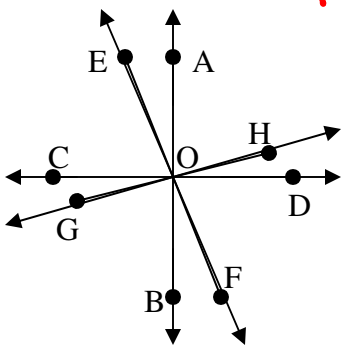
Lesson 2-5: Perpendicular Lines

Definition of perpendicular lines: two lines that intersect to form four right angles

Ex 1: In the diagram, $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ and $\overleftrightarrow{EF} \perp \overleftrightarrow{GH}$. Name eight right angles.

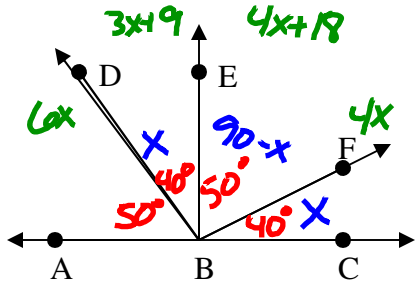
↑ perpendicular to



∠AOD ∠FOH
∠EOG
∠EOH
∠FOG
∠DOB
∠COB
∠ACC

Ex 2: In the diagram, $\overleftrightarrow{BE} \perp \overleftrightarrow{AC}$ and $\overleftrightarrow{BD} \perp \overleftrightarrow{BF}$. Complete the given table.

m< CBF	m<EBF	m<DBE	m<DBA	m<DBC
40°	50°	40°	50°	130°
x°	(90-x)°	x°	(90-x)°	(90+x)°



Ex 3: Solve for x using the diagram from example 2.

m< ABD = 6x, m< DBE = 3x + 9, m< EBF = 4x + 18, m< FBC = 4x

$6x + 3x + 9 = 90$

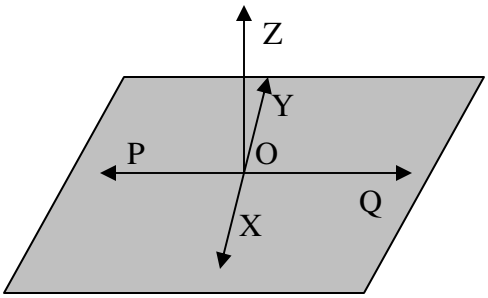
$9x + 9 = 90$

$9x = 81$

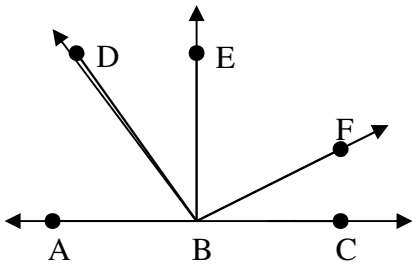
$x = 9$

Complete the following.

1) In the diagram, $\overrightarrow{OZ} \perp \overleftrightarrow{PQ}$, $\overrightarrow{OZ} \perp \overleftrightarrow{XY}$, and $\overleftrightarrow{PQ} \perp \overleftrightarrow{XY}$. Name eight right angles.



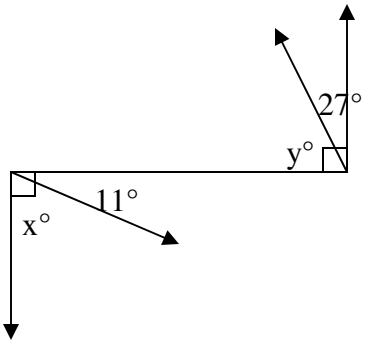
2) Use the given diagram to solve for x given that $\overrightarrow{BE} \perp \overrightarrow{AC}$ and $\overrightarrow{BD} \perp \overrightarrow{BF}$.



A) m< ABD = 2x – 15, m< DBE = x

B) m< DBE = 3x, m< EBF = 4x – 1

3) Solve for x and y.



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