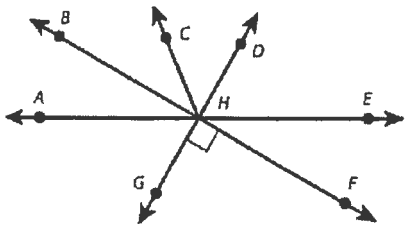
Name Answer Key Standards Mastery Review 7.G.5

In the figure, $\overleftrightarrow{AE}$, $\overleftrightarrow{BF}$, $\overleftrightarrow{DG}$, and $\overleftrightarrow{HC}$ intersect at point H, and $\angle FHG$ is a right angle.



Choose *True* or *False* for each statement.

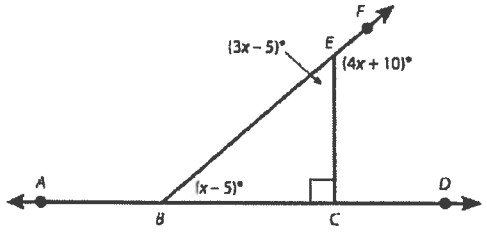
a. $\angle AHB$ and $\angle AHG$ are vertical angles. ☐ True ☒ False

b. $\angle EHF$ and $\angle DHE$ are adjacent angles. ☒ True ☐ False

c. The measure of $\angle FHG$ is equal to the measure of $\angle DHF$. ☒ True ☐ False

d. The sum of the measures of $\angle BHC$ and $\angle CHD$ is equal to the measure of $\angle FHG$. ☒ True ☐ False

What are the measures of $\angle BEC$ and $\angle ABE$ in the figure shown?



$3x - 5 + 4x + 10 = 180$

$7x + 5 = 180$

$-5 \quad -5$

$\frac{1}{7} \cdot 7x = 175 \cdot \frac{1}{7}$

$x = 25$

$\angle BEC = 3x - 5$

$= 3(25) - 5$

$= 70$

$\angle EBC = x - 5$

$= 25 - 5$

$= 20$

$\angle ABE + \angle EBC = 180$

$\angle ABE + 20 = 180$

$-20 \quad -20$

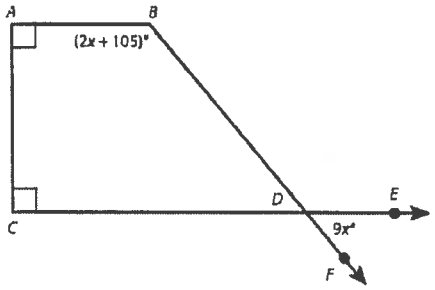
$\angle ABE = 160$

Answers: The measure of $\angle BEC$ is 70°.

The measure of $\angle ABE$ is 160°.

In the diagram, $\angle ABD$ and $\angle BDC$ are supplementary, the measure of $\angle EDF = 9x°$, and the measure of $\angle ABD = (2x + 105)°$.

Based on this information, which equation can be used to find the value of x?



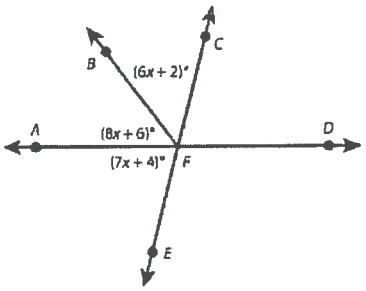
A $9x = 2x + 105$

(B) $2x + 105 + 9x = 180$

C $2x + 105 + 9x = 90$

D $2x + 105 - 9x = 90$

In the figure shown, $\overleftrightarrow{AD}$, $\overleftrightarrow{CE}$, and $\overleftrightarrow{FB}$ intersect at point F.



Part A

What is the value of *x*?

Show your work.

$6x+2+8x+6+7x+4=180$

$21x+12=180$

$-12 \quad -12$

$\frac{21x}{21} = \frac{168}{21}$

$x=84$

Answer: $x =$ 84

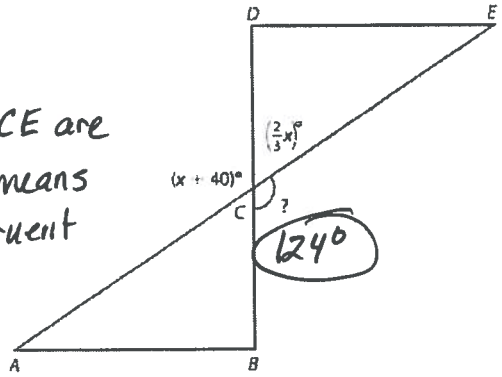
Part B

Describe two different ways you could find measure of $\angle CFD$. What is the measure of this angle?

1.) ∠CFD is vertical with ∠AFE

2.) ∠CFD is supplementary with ∠AFB and ∠BFC

Find the measure of $\angle BCE$ in the diagram shown.



∠ACD and ∠BCE are vertical, which means they are congruent

124°

$x+40+\frac{2}{3}x=180$

$1\frac{2}{3}x+40=180$

$-40 \quad -40$

$\frac{3}{5}\cdot\frac{5}{3}x = 140\cdot\frac{3}{5}$

$x=84$

Show your work.

$x+40$

$84+40=124$

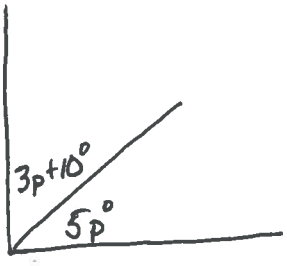
Two angles are complementary. One angle is labeled $(3p + 10)°$. The other angle is labeled $5p°$. Find the value of *p*.

A $p = 5$

B $p = 10$

C $p = 21.25$

D $p = 43.75$



$3p+10+5p=90$

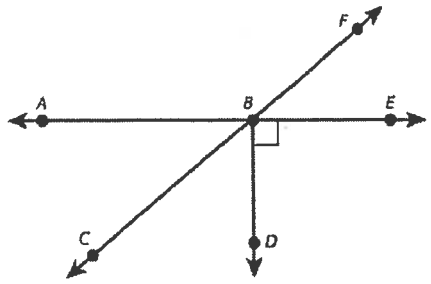
$8p+10=90$

$-10 \quad -10$

$\frac{8p}{8} = \frac{80}{8}$

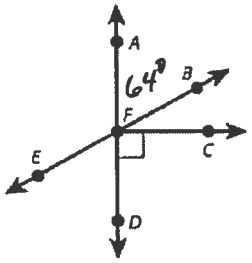
$p=10$

Consider the following statements about the diagram below. Choose *True* or *False* for each statement.



a.	$\angle FBE$ and $\angle ABC$ are vertical angles.	☒ True	☐ False
b.	$m\angle CBD = 180° - m\angle ABC$	☐ True	☒ False
c.	$\angle ABF$ and $\angle FBE$ are supplementary angles.	☒ True	☐ False
d.	$\angle FBE$ and $\angle DBE$ are complementary angles.	☐ True	☒ False

In the diagram, $m\angle AFB = 64°$.



a. Name an angle that is complementary to $\angle AFB$. ∠BFC
What is the measure of this angle? 26°

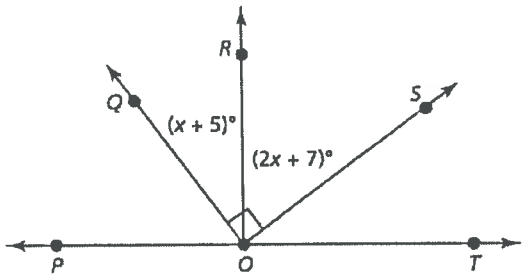
b. Name an angle that is supplementary to $\angle AFB$. ∠EFA
What is the measure of this angle? 116°

c. Name an angle that is vertical to $\angle AFB$. ∠EFD
What is the measure of this angle? 64°

$x + 64 = 90$
$-64 \quad -64$
$x = 26$

$x + 64 = 180$
$-64 \quad -64$
$x = 116°$

The figure below shows several rays that share a common endpoint.



$x+5+2x+7=90$

$3x+12=90$

$-12 \quad -12$

$\frac{3x}{3} = \frac{78}{3}$

$x = 26$

$\angle QOR = x+5$

$= 26+5$

$= 31$

$\angle QOR = 31°$

$4a+3=31$

$-3 \quad -3$

$\frac{4a}{4} = \frac{28}{4}$

$a = 7$

Suppose that the measure of $\angle QOR$ had instead been represented as $(4a + 3)°$. What expression could have represented the measure of $\angle ROS$?

Choose from the list below to write the expression. Not all numbers and symbols will be used.

4a 8a 3 5 7 9

(8a + 3)°

$31 + \angle ROS = 90$

$-31 \quad -31$

$\angle ROS = 59$

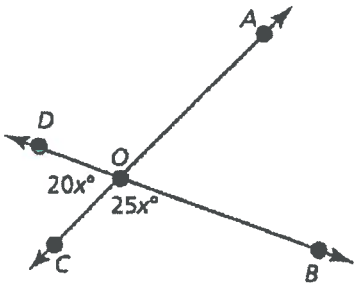
We need an expression that has a value of 59 using a value of $a = 7$.

$8a+3$

$8(7)+3$

59

Lines $\overline{AC}$ and $\overline{BD}$ intersect at O as shown.



$20x+25x=180$

$\frac{1}{45} \cdot 45x = 180 \cdot \frac{1}{45}$

$x = 4$

$\angle BOC = 25x$

$25(4)$

$100°$

What is the measure of $\angle BOC$?

A 4°

B 45°

C 80°

D 100°