Describe Angle Pair Relationships

Ch 1.5

In this section we will…

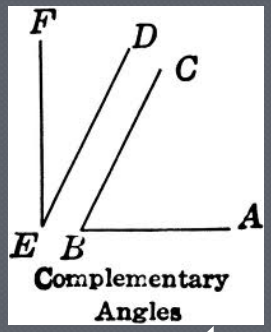
- Look at different kinds of angle pairs
  - Complementary
  - Supplementary
  - Adjacent
  - Linear
  - Vertical
- Apply angle pair relationship in algebra

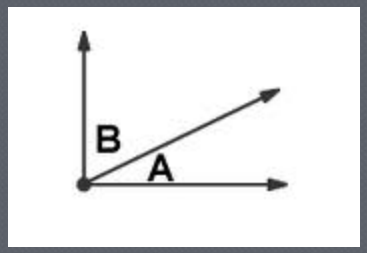
What is adjacent again?

- When two angles share a common side, they are considered adjacent.

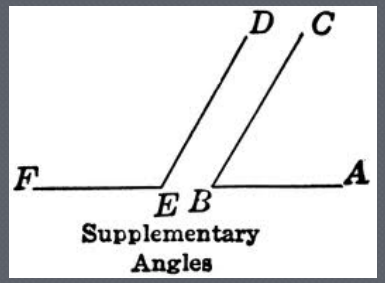
What is the difference between complementary & supplementary?

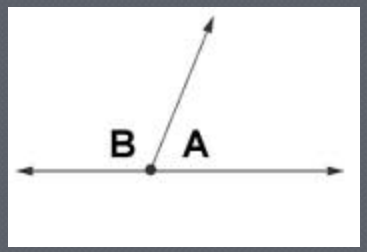
- Complementary: angles that add up to ninety degrees.





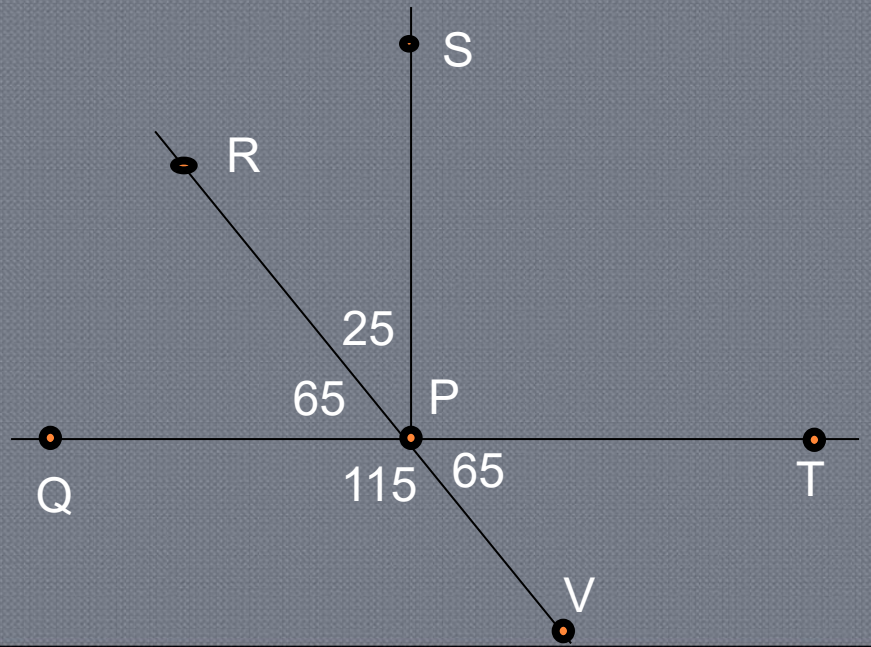
- Supplementary: angles that add up to one hundred eighty degrees.





Angle Pairs
Example 1: Look at the following diagram and find the following:

- A pair of complementary angles
- A pair of supplementary angles
- A pair of adjacent angles
- A pair of vertical angles



Finding the complement and supplement

$\angle 1$ *and* $\angle 2$ *are complementary and* $\angle 2$ *and* $\angle 3$ *are* sup *plementary*

Find the $m\angle 2$ *and* $m\angle 3$

$m\angle 1 = 52$

$m\angle 2 = ?$

$m\angle 3 = ?$

Finding the complement and supplement

$\angle 1$ *and* $\angle 2$ *are complementary and* $\angle 2$ *and* $\angle 3$ *are* sup *plementary*

Find the $m\angle 2$ *and* $m\angle 3$

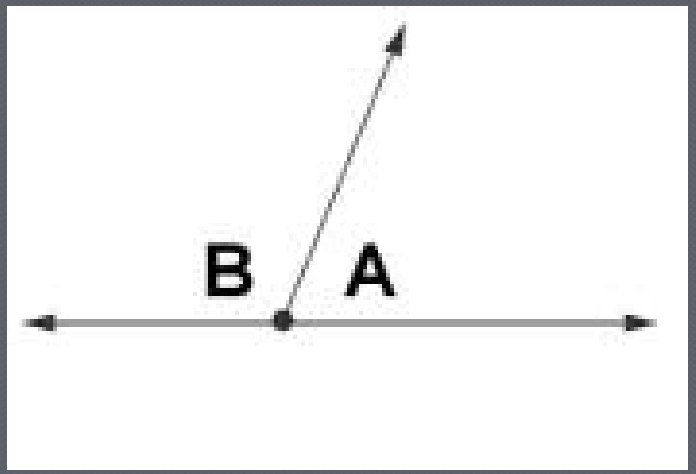
$m\angle 1 = 14$

$m\angle 2 = ?$

$m\angle 3 = ?$

What is a linear pair?

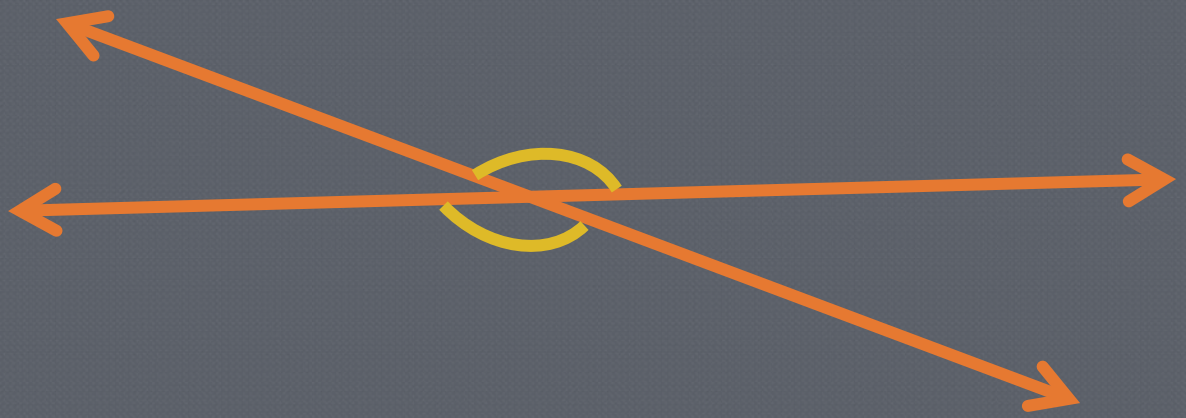
- A **linear pair** is a supplementary adjacent angle.



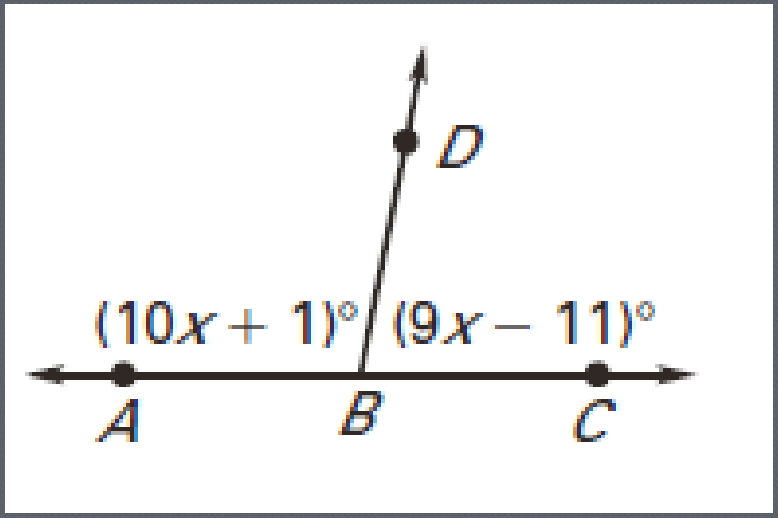
What are vertical angles?

- **Vertical angles** are created by two intersecting lines and are across from each other.

- **They are congruent angles.**



What do I do?



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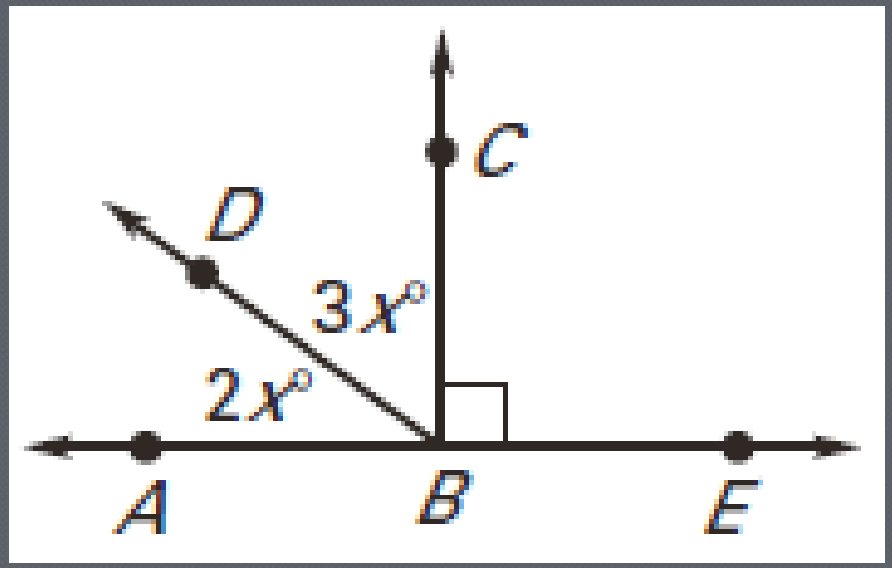

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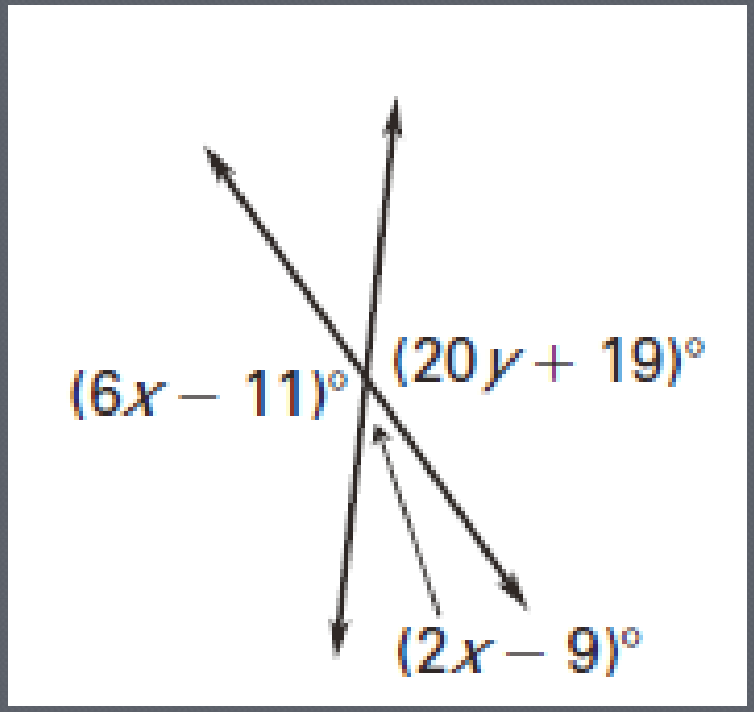

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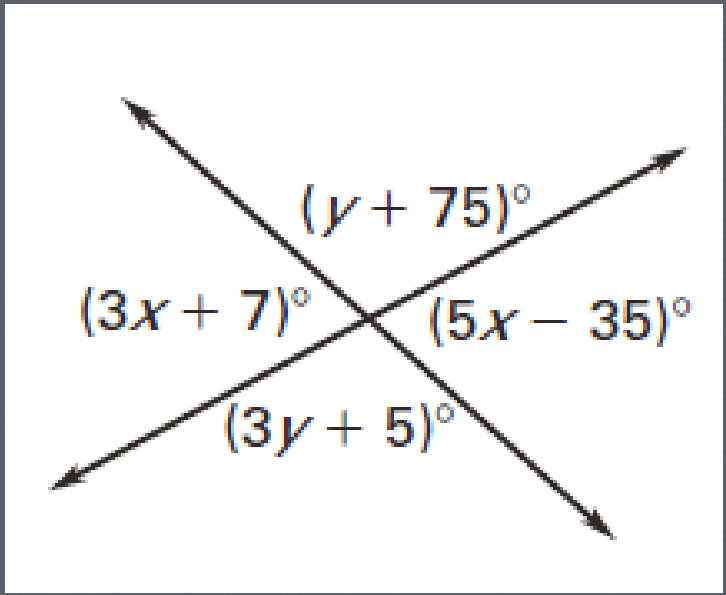

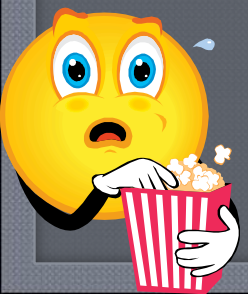

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COMPLEMENTARY ANGLES $\angle 1$ and $\angle 2$ are complementary angles. Given the measure of $\angle 1$, find $m\angle 2$.

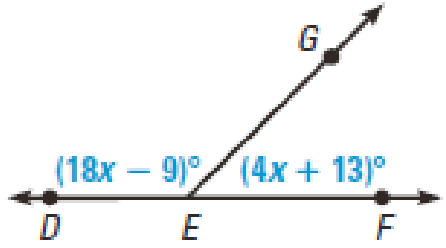
8. $m\angle 1 = 43°$ 9. $m\angle 1 = 21°$ 10. $m\angle 1 = 89°$ 11. $m\angle 1 = 5°$

SUPPLEMENTARY ANGLES $\angle 1$ and $\angle 2$ are supplementary angles. Given the measure of $\angle 1$, find $m\angle 2$.

12. $m\angle 1 = 60°$ 13. $m\angle 1 = 155°$ 14. $m\angle 1 = 130°$ 15. $m\angle 1 = 27°$

ALGEBRA Find $m\angle DEG$ and $m\angle GEF$.

17.



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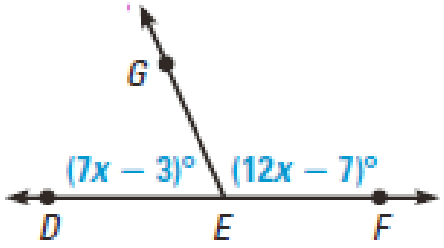

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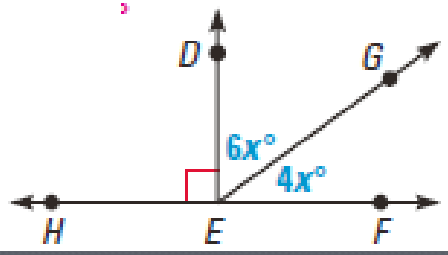


IDENTIFYING ANGLE PAIRS Use the diagram below. Tell whether the angles are *vertical angles*, a *linear pair*, or *neither*.

20. $\angle 1$ and $\angle 4$

21. $\angle 1$ and $\angle 2$

22. $\angle 3$ and $\angle 5$

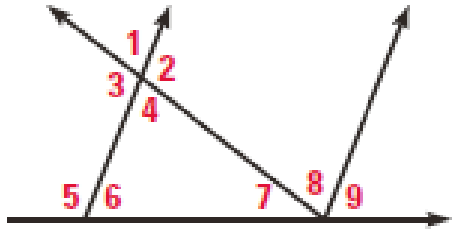
23. $\angle 2$ and $\angle 3$

24. $\angle 7$, $\angle 8$, and $\angle 9$

25. $\angle 5$ and $\angle 6$

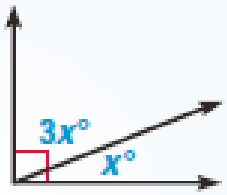
26. $\angle 6$ and $\angle 7$

27. $\angle 5$ and $\angle 9$



28. **ALGEBRA** Two angles form a linear pair. The measure of one angle is 4 times the measure of the other angle. Find the measure of each angle.

29. **ERROR ANALYSIS** *Describe* and correct the error made in finding the value of x.



$x° + 3x° = 180°$

$4x = 180$

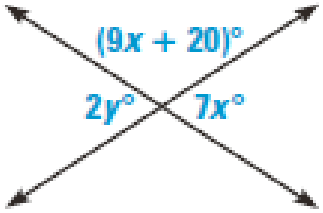
$x = 45$

30. ★ **MULTIPLE CHOICE** The measure of one angle is 24° greater than the measure of its complement. What are the measures of the angles?

(A) 24° and 66° (B) 24° and 156° (C) 33° and 57° (D) 78° and 102°

ALGEBRA Find the values of x and y.

31.



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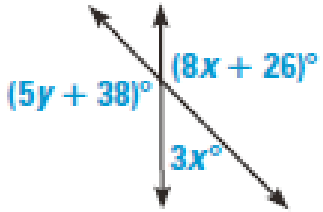

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