5-5-17

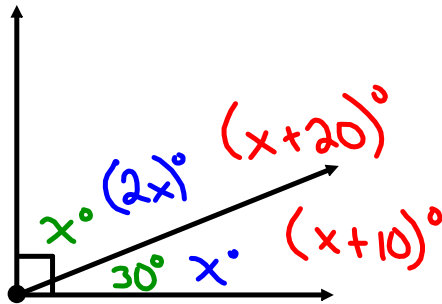Aim: SWBAT continue to find missing angle measurements algebraically.

Do Now: What are the three angle relationships that have a number associated with the relationship? What number is associated with each?

HW: Finish WS
        Quiz Tuesday or Wednesday (Angle Relationships)
        Final Review Packet Due June 2

Complementary Angles are angles whose sum is 90°.

Solve algebraically.

$$x + 30 = 90$$
$$-30 \quad -30$$
$$x = 60$$

measure(s)

$$x + 2x = 90$$
$$3x = 90$$
$$\frac{3x}{3} = \frac{90}{3}$$
$$x = 30$$
$$2x = 60$$

$$2x$$
$$2 \cdot 30$$
$$60$$

$$(x + 20) + (x + 10) = 90$$
$$2x + 30 = 90$$
$$-30 \quad -30$$
$$\frac{2x}{2} = \frac{60}{2}$$
$$x = 30$$

$$x + 10$$
$$30 + 10$$
$$40$$

$$x + 20$$
$$30 + 20$$
$$50$$

Supplementary Angles are angles whose sum is 180°.

$(3x+20)°$ $3x$ x $(2x-10)°$

x $20°$
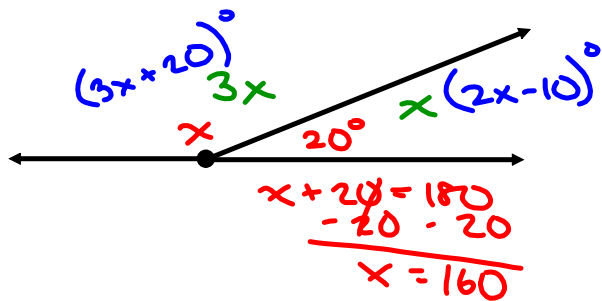
$x + 20 = 180$
$\quad -20 \quad -20$
$\quad x = 160$

$x + 3x = 180$

$\dfrac{4x}{4} = \dfrac{180}{4}$

$x = 45$

$3x = 135$

Solve algebraically.

$(3x+20) + (2x-10) = 180$
$5x + 10 = 180$
$\quad -10 \quad -10$
$\dfrac{5x}{5} = \dfrac{170}{5}$
$\quad x = 34$
$3x + 20 = 122$
$2x - 10 = 58$

$3x + 20$
$3 \cdot 34 + 20$
$\downarrow$
$102 + 20$
122

$2x - 10$
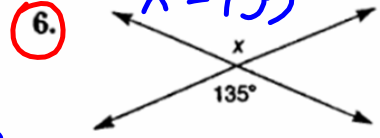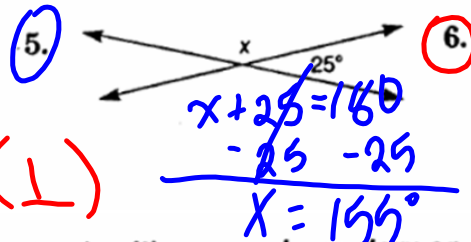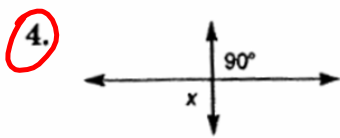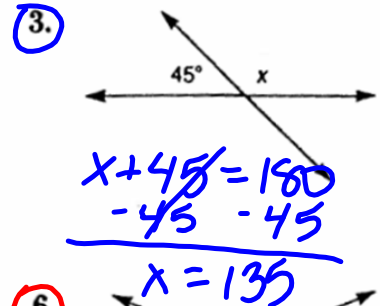$2 \cdot 34 - 10$
$68 - 10$
58

vertical : ≅   complementary: 90°   supplementary 180°

Angle Relationships

Find the value of x in each figure.

1. 115°
$x = 115°$

2. x ⟩ 41°
$x = 41°$

3. 45°   x
$x + 45 = 180$
$-45 \quad -45$
$x = 135$

4. 90°   x

perpendicular (⊥)

5. x   25°
$x + 25 = 180$
$-25 \quad -25$
$x = 155°$

6. x   135°
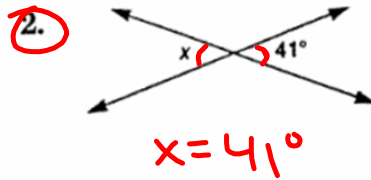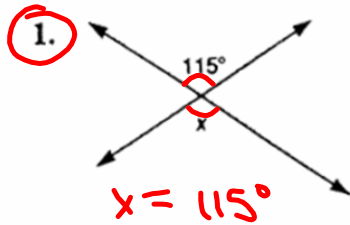
Each of the following pairs of angles is either complementary or supplementary. Find the measure of each angle.

7. x   x

8. 3x   x

9. x   2x

10. 2x   x + 30

11. x + 20   x + 10

12. x + 20   5x + 10

13. 6x   4x

14. 3x + 20   2x − 10

15. 2x + 15   3x − 15