

Solve for the indicated angles and variables.

Give the equation(s) used to solve and reason(s) why each equation is true.

1. $x = 8.14$ $m\angle 1 = 53^\circ$

$7x+3 = 60$
 $-3 \quad -3$
 $\frac{7x}{7} = \frac{57}{7}$
 $x = 8.14$

$m\angle 1 + 127^\circ = 180^\circ$
 $-127 \quad -127$
 $m\angle 1 = 53^\circ$

$m\angle 2 = 67^\circ$ $m\angle 3 = 60^\circ$

$m\angle 2 + 133 = 180$
 $-133 \quad -133$
 $m\angle 2 = 67^\circ$

$m\angle 3 + 53 + 67 = 180$
 $m\angle 3 + 120 = 180$
 $-120 \quad -120$
 $m\angle 3 = 60$

2. $x = 40$

$40 + 3x + 20 = 180$
 $3x + 60 = 180$
 $-60 \quad -60$
 $\frac{3x}{3} = \frac{120}{3}$
 $x = 40$

3. $x = 65$

$45 + 2x + 5 = 180$
 $2x + 50 = 180$
 $-50 \quad -50$
 $\frac{2x}{2} = \frac{130}{2}$
 $x = 65$

4. $x = 7.16$

$7x - 4 + 5x + 8 + 90 = 180$
 $12x + 94 = 180$
 $-94 \quad -94$
 $\frac{12x}{12} = \frac{86}{12}$
 $x = 7.16$

5. $x = 26$

$50 + 70 = 120$
 $180 - 120 = 60$

$60 + 5x - 10 = 180$
 $5x + 50 = 180$
 $-50 \quad -50$
 $\frac{5x}{5} = \frac{130}{5}$
 $x = 26$

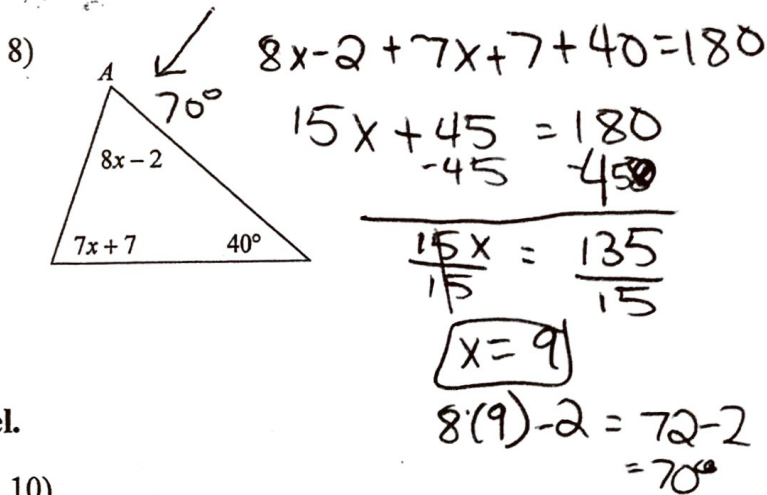
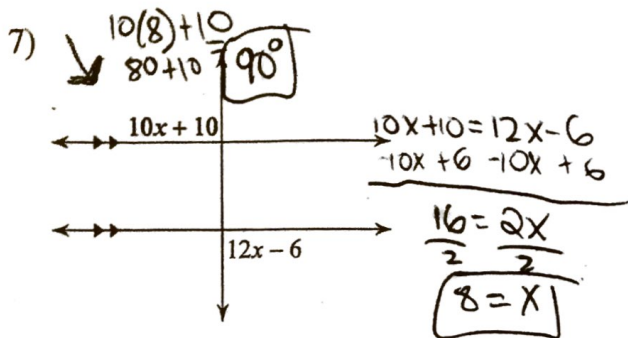
6. $x = 5$

$10x + 2 + 128 = 180$
 $10x + 130 = 180$
 $-130 \quad -130$
 $\frac{10x}{10} = \frac{50}{10}$
 $x = 5$

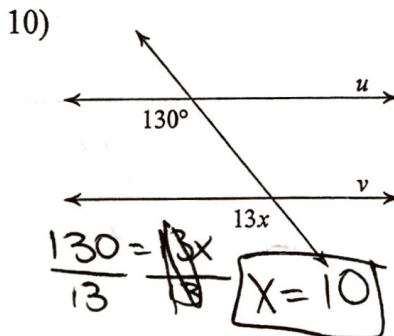
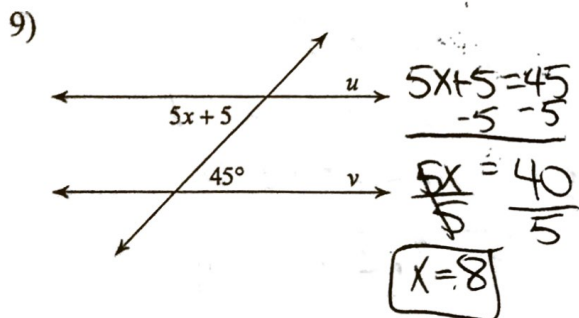
7. $x = 7$

$20x + 2 = 142$
 $-2 \quad -2$
 $\frac{20x}{20} = \frac{140}{20}$
 $x = 7$

Find the measure of the angle indicated with the arrow.



Find the value of x that makes lines u and v parallel.



Use Figure 1 to answer problems 11 - 14. Figure is not drawn to scale.

11) What is the measure of angle 4? State how you know.
 Angle 4 = 98°
 Reason: Triangle Angle Sum Thm -
 $\text{Angle } 4 + 54^\circ + 28^\circ = 180^\circ$
Angle 4 is part of a triangle

12) What is the measure of angle 6? State the value and the type of angle pair you used to find the angle measure.

Angle 6 = 118°
 Angle relationship used: Corresponding angle with 118°

13) Is the relationship between angle 6 and angle 9 complementary, supplementary, congruent, or none of these? State how you know.

Angle 9 and angle 6 are Supplementary
 Reason: angle 6 and angle 9 are corresponding angles, so
angle 6 and angle 9 are a linear pair, so
So angle 6 and angle 9 are supplementary, supplementary.

14) Find the angle measures of angle 7 and angle 8 and state what type of angle pair they are.

Angle 7 = 128°
 Angle 8 = 52°
 Angle 7 and Angle 8 are Linear pair and supplementary

Figure 1

