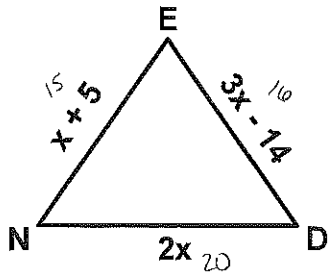


CHAPTER 5

Find x , then list the **angles** of each triangle in order from least to greatest measure.

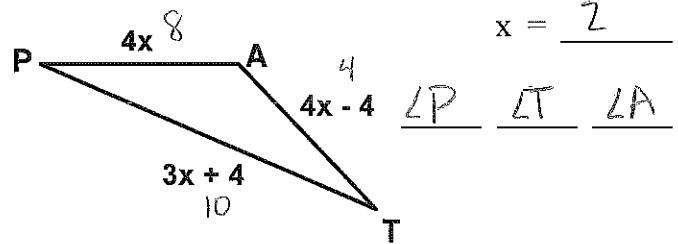
1. The perimeter of $\triangle NED$ is 51 cm.



$x = 10$
 $\angle D \quad \angle N \quad \angle E$

$x + 5 + 3x - 14 + 2x = 51$
 $6x - 9 = 51$
 $6x = 60$
 $x = 10$

2. The perimeter of $\triangle PAT$ is 22 inches.

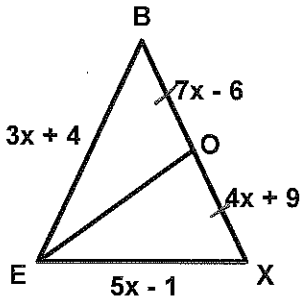


$x = 2$
 $\angle P \quad \angle T \quad \angle A$
 $4x + 3x + 4 + 4x - 4 = 22$
 $11x = 22$
 $x = 2$

Find each indicated measure.

3. \overline{EO} is a median

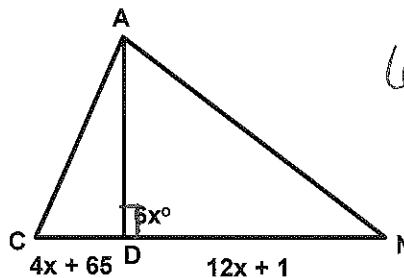
$x = 5$



$4x + 9 = 7x - 6$
 $15 = 3x$
 $5 = x$

4. \overline{AD} is an altitude

$x = 15$



$6x = 90$
 $x = 15$

Determine whether it is possible to draw a triangle with sides of the given measures. Write yes or no.

Explain your answer.

5. 3, 4, 7

NO $3 + 4 \not> 7$

6. 6, 9, 10

YES

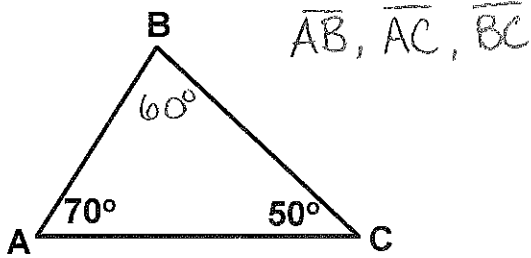
7. 11, 9, 22

NO $11 + 9 \not> 22$

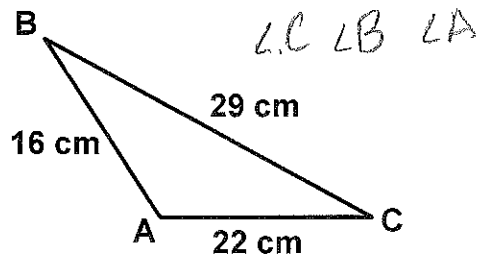
8. 8, 9, 16

YES

9. List the sides from shortest to longest.



10. List the angles in order from least to greatest.



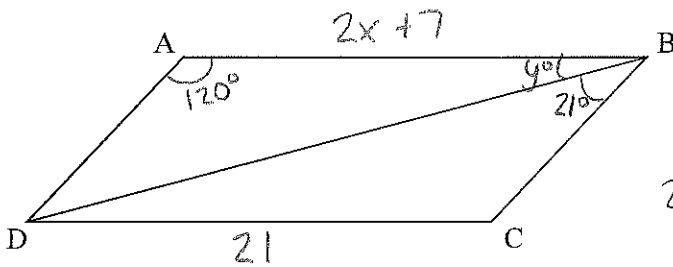
CHAPTER 6

1. Find the sum of the measure if the interior angles of each shape.

Hexagon
 $(6-2)(180) = 720^\circ$

Octagon
 $(8-2)(180) = 1080$

2. ABCD is a parallelogram. If $AB = 2x + 7$, $CD = 21$, $m\angle CBD = 21^\circ$, $m\angle ABD = y$ and $m\angle A = 120^\circ$, find each indicated measure.

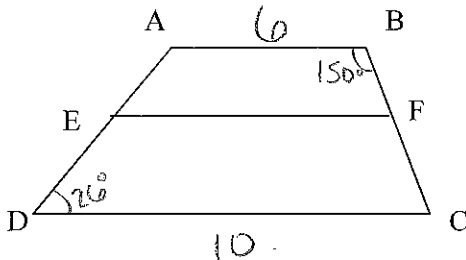


$$\begin{aligned} 2x + 7 &= 21 \\ 2x &= 14 \\ x &= 7 \end{aligned}$$

$$\begin{aligned} x &= \underline{7} & y &= \underline{39} \\ m\angle C &= \underline{120^\circ} & m\angle ADB &= \underline{21^\circ} \\ m\angle BDC &= \underline{39^\circ} \end{aligned}$$

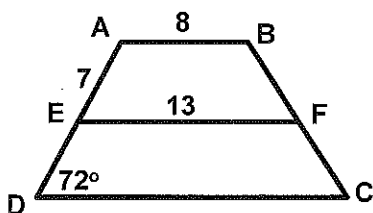
$$\begin{aligned} 120 + y + 21 &= 180 \\ y + 141 &= 180 \\ y &= \underline{39^\circ} \end{aligned}$$

3. ABCD is a trapezoid. If $AB = 6$, $DC = 10$, $m\angle B = 150^\circ$, and $m\angle D = 26^\circ$, find each indicated measure.



$$\begin{aligned} EF &= \underline{8} & m\angle BFE &= \underline{30^\circ} \\ m\angle C &= \underline{30^\circ} & m\angle DEF &= \underline{154^\circ} \\ m\angle AEF &= \underline{26^\circ} & m\angle A &= \underline{154^\circ} \end{aligned}$$

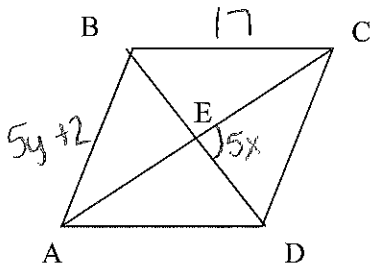
4. Given isosceles trapezoid ABCD, find each measure.



$$\begin{aligned} DC &= \frac{8+x}{2} = 13 \\ 8+x &= 26 \\ x &= 18 \end{aligned}$$

$$\begin{aligned} m\angle A &= \underline{108^\circ} & m\angle BFE &= \underline{72^\circ} \\ m\angle EFC &= \underline{108^\circ} & m\angle C &= \underline{72^\circ} \\ DC &= \underline{18} & BF &= \underline{7} \\ FC &= \underline{7} & BC &= \underline{14} \end{aligned}$$

5. ABCD is a rhombus. If $AB = 5y + 2$, $BC = 17$, and $m\angle CED = 5x$, find each indicated measure.



$$5y + 2 = 17$$

$$5y = 15$$

$$y = 3$$

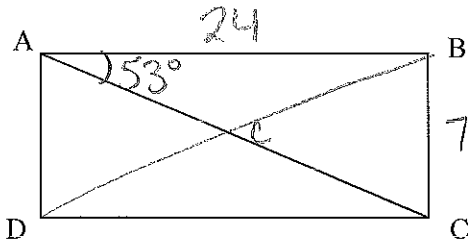
$$5x = 90$$

$$x = 18$$

$$x = \frac{18}{3}$$

$$y = \underline{3}$$

6. ABCD is a rectangle. If $AB = 24$, $BC = 7$, and $m\angle BAC = 53^\circ$, find each indicated measure.



$$24^2 + 7^2 = c^2$$

$$625 = c^2$$

$$25 = c$$

$$AC = \underline{25}$$

$$AD = \underline{7}$$

$$BD = \underline{25}$$

$$DC = \underline{24}$$

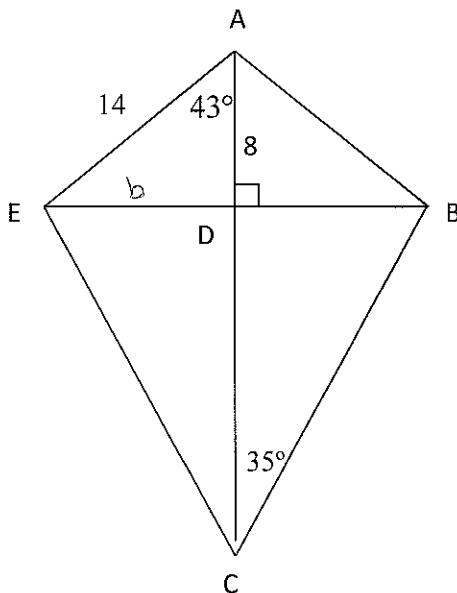
$$m\angle D = \underline{90^\circ}$$

$$m\angle ACB = \underline{37^\circ}$$

$$m\angle ACD = \underline{53^\circ}$$

$$m\angle DAC = \underline{37^\circ}$$

7. ABCD is a kite. Find each indicated measure.



$$14^2 = 8^2 + b^2$$

$$196 = 64 + b^2$$

$$132 = b^2$$

$$11.5 = b$$

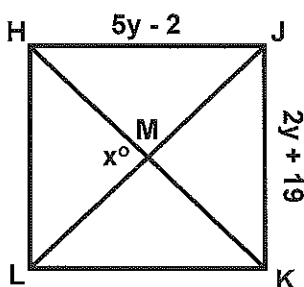
$$AB = \underline{14} \quad ED = \underline{11.5}$$

$$EB = \underline{23} \quad m\angle BAD = \underline{43^\circ}$$

$$m\angle ADE = \underline{90^\circ} \quad m\angle ABD = \underline{47^\circ}$$

$$m\angle DBC = \underline{55^\circ} \quad m\angle ECD = \underline{35^\circ}$$

8. Given Square HJKL, solve for x, y, and JK.



$$5y - 2 = 2y + 19$$

$$3y = 21$$

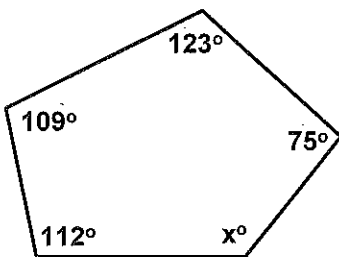
$$y = 7$$

$$x = \underline{90^\circ}$$

$$y = \underline{7}$$

$$JK = \underline{33}$$

9. Solve for x.



$$112 + 109 + 123 + 75 + x = 540$$

$$419 + x = 540$$

$$x = 121$$

$$x = \underline{121}$$

CHAPTER 7

1. Solve for x.

$$\frac{5}{8} = \frac{3x}{9}$$

$$45 = 24x$$

$$x = 1.875$$

2. Solve for x.

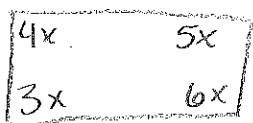
$$\frac{x}{4} = \frac{x+9}{12}$$

$$12x = 4x + 36$$

$$8x = 36$$

$$x = 4.5$$

3. The ratio of the angles of a quadrilateral is 3:4:5:6. Find the degree measure of each angle.



$$3x + 4x + 5x + 6x = 360$$

$$18x = 360$$

$$x = 20$$

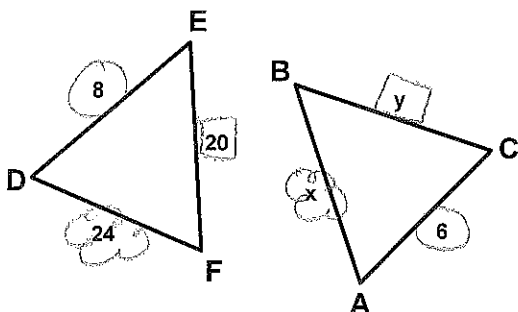
$$60^\circ, 80^\circ, 100^\circ, 120^\circ$$

4. The ratio of students to teachers is 28:1. If there are 200 teachers at a school, find the number of students there must be at the school.

$$\frac{28}{1} = \frac{x}{200}$$

$$x = 5600 \text{ students}$$

5. Use $\triangle DEF \sim \triangle ACB$, to find x and y. (Hint: Use the similarity statement to set up a proportion and solve.)



$$\frac{8}{6} = \frac{24}{x}$$

$$8x = 144$$

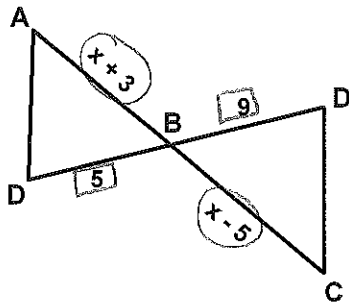
$$x = 18$$

$$\frac{8}{6} = \frac{20}{y}$$

$$8y = 120$$

$$y = 15$$

6. Use $\triangle ABE \sim \triangle CBD$, to find x. (Hint: Use the similarity statement to set up a proportion and solve.)



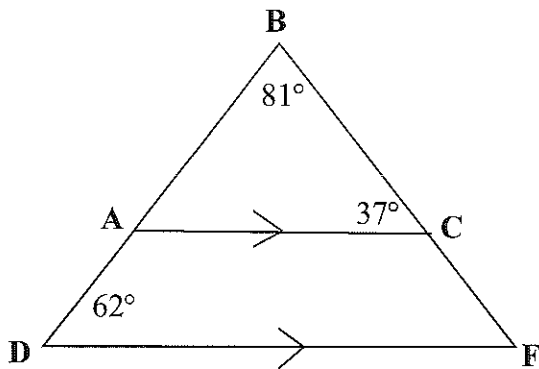
$$\frac{x+3}{x-5} = \frac{5}{9}$$

$$9x + 27 = 5x - 25$$

$$4x = -52$$

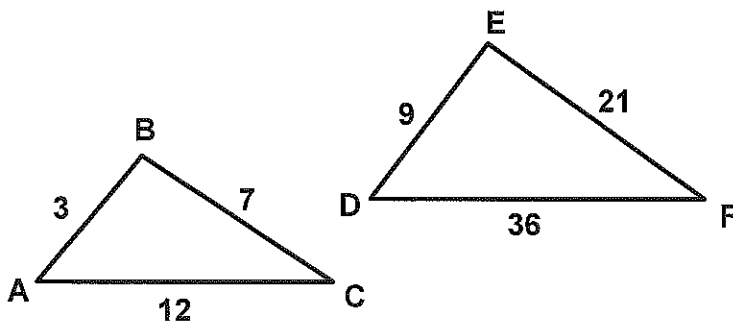
$$x = -13$$

7. Is $\triangle ABC \sim \triangle DBF$? If so, state the reason why SSS, SAS, or AAA. (If you select SSS or SAS, please show your reduced ratios.)



Yes!
AAA

8. Is $\triangle ABC \sim \triangle DEF$? If so, state the reason why SSS, SAS, or AAA. (If you select SSS or SAS, please show your reduced ratios.)



Yes!
SSS

$$\frac{3}{9} = \frac{1}{3}$$

$$\frac{7}{21} = \frac{1}{3}$$

$$\frac{12}{36} = \frac{1}{3}$$

9. Ben is trying to figure out how tall a building is by using a mirror. Ben places the mirror 10 feet away from the building. He is about 6 feet tall and stands 4 feet away from the mirror. What is the height of the building?



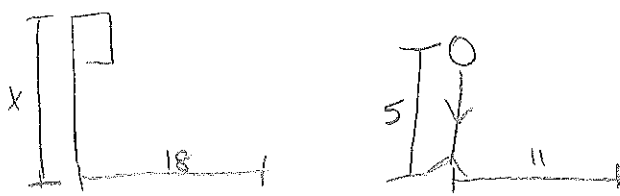
$$\frac{6}{4} = \frac{x}{10}$$

$$60 = 4x$$

$$15 = x$$

$$15 \text{ ft}$$

10. Marybeth uses shadows to estimate the height of a flagpole. The shadow of the flagpole is 18 feet long. Marybeth is 5 feet tall and her shadow is 11 feet long. What is the height of the flagpole?



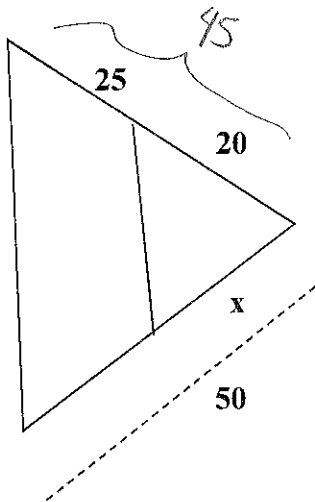
$$\frac{x}{18} = \frac{5}{11}$$

$$11x = 90$$

$$x = 8.18$$

$$8.2 \text{ ft.}$$

11. Find x.

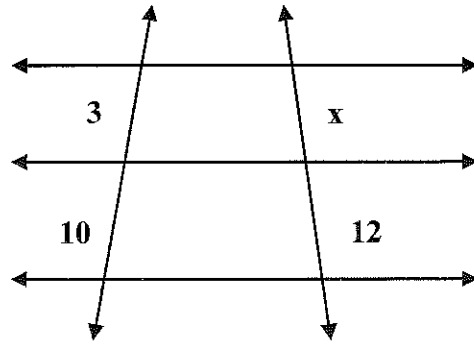


$$\frac{x}{50} = \frac{20}{45}$$

$$45x = 1000$$

$$x = 22.2$$

12. Find x.



$$\frac{3}{10} = \frac{x}{12}$$

$$10x = 36$$

$$x = 3.6$$

CHAPTER 8

Simplify each radical.

1. $\sqrt{72}$

$$3 \cdot 2\sqrt{2}$$

$$6\sqrt{2}$$

2. $5\sqrt{32}$

$$5 \cdot 2 \cdot 2\sqrt{2}$$

$$20\sqrt{2}$$

3. $\sqrt{98x^5}$

$$7x^2\sqrt{2x}$$

Find each indicated length. Leave your answer in reduced radical form if possible, otherwise round to the nearest hundredths place.

