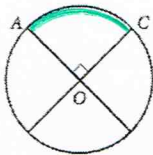


Los Angles No Calculator

2 WHOLE OVER PART



The circle above with center  $O$  has a circumference of 36. What is the length of minor arc  $\widehat{AC}$ ?

- A) 9
- B) 12
- C) 18
- D) 36

$$\frac{WH}{PT} = \frac{WH}{PT}$$

$$\frac{360}{90} = \frac{36}{x}$$

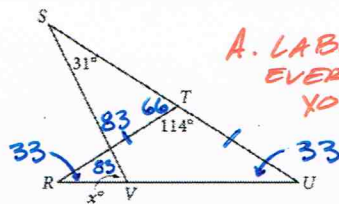
$$360x = 3240$$

$$x = 9$$

A. NOTICE RELATIONSHIP WITH DEGREES AND CIRC AREA

B. CROSS MULTIPLY

4 TRIANGLE RULES



A. LABEL! EVERYTHING YOU KNOW!

In the figure above,  $RT = TU$ . What is the value of  $x$ ?

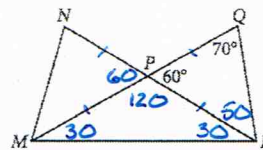
- A) 72
- B) 66
- C) 64
- D) 58

B. SUBTRACT

$$x = 180 - 83 - 33$$

$$x = 64$$

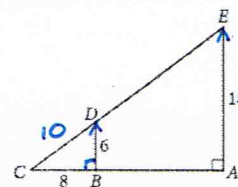
17



A. LABEL!  
B.  $\angle QMR = 30^\circ$

In the figure above,  $\overline{MQ}$  and  $\overline{NR}$  intersect at point  $P$ ,  $NP = QP$ , and  $MP = PR$ . What is the measure, in degrees, of  $\angle QMR$ ? (Disregard the degree symbol when gridding your answer.)

18 PARALLEL RULES / PROPORTIONS



SIMILAR TRIANGLES  
A. LABEL NOTICE 3-4-5 RULE  
 $6 : 8 : 10$

$$18 : CA : CE$$

$$\frac{6}{18} = \frac{1}{3} = \frac{8}{CA}$$

In the figure above,  $\overline{BD}$  is parallel to  $\overline{AE}$ . What is the length of  $\overline{CE}$ ?

B. CROSS MULTIPLY

$$CA = 24$$

$$\frac{1}{3} = \frac{10}{CE}$$

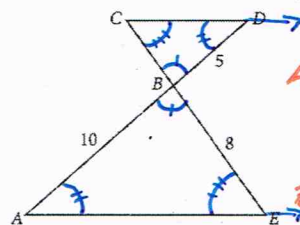
$$CE = 30$$

ALSO:

$$DE = 20$$

$$BA = 16$$

18 PARALLEL RULES / PROPORTIONS



SIMILAR TRIANGLES  
A. LABEL!

$$5 : 10$$

$$CB : 8$$

B. CROSS MULT.

$$10CB = 40$$

$$CB = 4$$

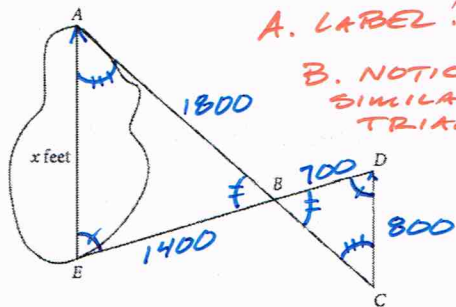
In the figure above,  $\overline{AE} \parallel \overline{CD}$  and segment  $\overline{AD}$  intersects segment  $\overline{CE}$  at  $B$ . What is the length of segment  $\overline{CE}$ ?

C. ADD

$$CB + BE = CE$$

$$4 + 8 = 12$$

17 PARALLEL RULES



A. LABEL!  
B. NOTICE SIMILAR TRIANGLES

A summer camp counselor wants to find a length,  $x$ , in feet, across a lake as represented in the sketch above. The lengths represented by  $\overline{AB}$ ,  $\overline{EB}$ ,  $\overline{BD}$ , and  $\overline{CD}$  on the sketch were determined to be 1800 feet, 1400 feet, 700 feet, and 800 feet, respectively. Segments  $\overline{AC}$  and  $\overline{DE}$  intersect at  $B$ , and  $\angle AEB$  and  $\angle CDB$  have the same measure. What is the value of  $x$ ?

C. SIDES ARE PROPORTIONAL

$$\frac{EB}{BD} = \frac{CB}{CD}$$

$$\frac{1400}{700} = \frac{2}{1}$$

$$\frac{AB}{1800} = \frac{BC}{900} = 2:1$$

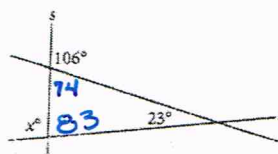
$$\frac{AE}{x} = \frac{DC}{800} = 2:1$$

$$x = 1600$$

20 LINE & TRIANGLE RULES

Intersecting lines  $r$ ,  $s$ , and  $t$  are shown below.

A. LABEL!



B. SUBTRACT

$$180 - 83 = x$$

$$97 = x$$

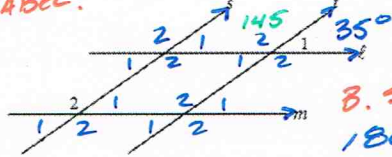
What is the value of  $x$ ?

Los Angles With Calculator

3 PARALLEL RULES

NOTE: A LINE = 180°

A. LABEL!

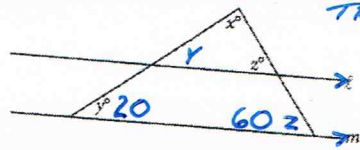


B. SUBTRACT  
 $180 - 35 = 145$   
 $145 - 122 = 23$

In the figure above, lines  $l$  and  $m$  are parallel and lines  $s$  and  $t$  are parallel. If the measure of  $\angle 1$  is  $35^\circ$ , what is the measure of  $\angle 2$ ?

- A)  $35^\circ$
- B)  $55^\circ$
- C)  $70^\circ$
- D)  $145^\circ$

5 PARALLEL RULES / SIMILAR TRIANGLES



Note: Figure not drawn to scale.

In the figure above, lines  $l$  and  $m$  are parallel,  $y = 20$ , and  $z = 60$ . What is the value of  $x$ ?

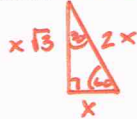
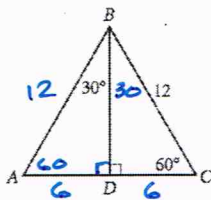
- A) 120
- B) 100
- C) 90
- D) 80

B. SUBTRACT  
 $x = 180 - y - z$   
 $x = 180 - 20 - 60$   
 $x = 100$

19 30-60-90 RULE

NOTE:

A. LABEL

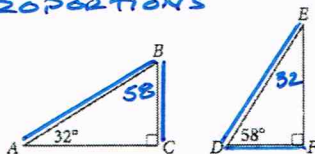


In  $\triangle ABC$  above, what is the length of  $\overline{AD}$ ?

- A) 4
- B) 6
- C)  $6\sqrt{2}$
- D)  $6\sqrt{3}$

$\overline{AD} = 6$

16 SIMILAR TRIANGLES PROPORTIONS



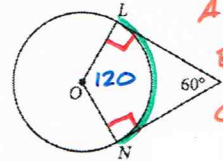
A. LABEL!  
 B. MATCH SIDES  
 $\frac{BC}{AB} = \frac{DF}{DE}$

Triangles  $ABC$  and  $DEF$  are shown above. Which of the following is equal to the ratio  $\frac{BC}{AB}$ ?

- A)  $\frac{DE}{DF}$
- B)  $\frac{DF}{DE}$
- C)  $\frac{DF}{EF}$
- D)  $\frac{EF}{DE}$

36 POINT OF TANGENCY = 90°

A. LABEL

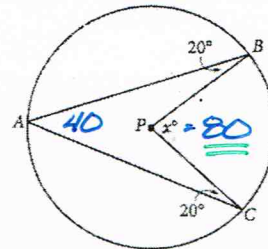


B. 4-SIDES = 360°  
 C.  $O = 360 - 90 - 90 - 60$   
 $O = 120^\circ$   
 D.  $\frac{WH}{PT} = \frac{WH}{PT}$

In the figure above, point  $O$  is the center of the circle, line segments  $LM$  and  $MN$  are tangent to the circle at points  $L$  and  $N$ , respectively, and the segments intersect at point  $M$  as shown. If the circumference of the circle is 96, what is the length of minor arc  $\overline{LN}$ ?

$\frac{360}{120} = \frac{96}{x}$   
 $360x = 11520$   
 $x = 32$

36 ANGLE RULES / CIRCLE THEORY



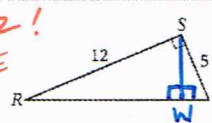
A. LABEL  
 B. NOTICE DOUBLES RELATIONSHIP

Point  $P$  is the center of the circle in the figure above. What is the value of  $x$ ?

36 SIMILAR TRIANGLE RULES

A. LABEL!

B. NOTICE SIMILAR TRIANGLES



C. AND PROPORTIONAL TS : SR : RT LENGTHS  
 $5 : 12 : 13$   
 $SW : WR : RS$   
 $TW : WS : ST$

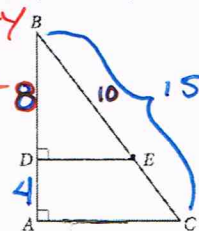
In triangle  $RST$  above, point  $W$  (not shown), lies on  $RT$ . What is the value of  $\cos(\angle RSW) - \sin(\angle WST)$ ?



36 SIMILAR TRIANGLES

\* SLICKERY

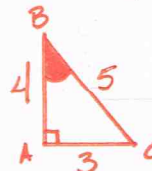
A. LABEL



NOTICE: NATURALLY SIDE CANNOT BE THE SAME, BUT THEIR SIDES ARE PROPORTIONAL

In the figure above,  $\tan B = \frac{3}{4}$ . If  $BC = 15$  and  $DA = 4$ , what is the length of  $\overline{DE}$ ?

B. NOTICE



TAN B =  $\frac{3}{4}$   
 $\frac{O}{A} = \frac{3}{4}$   
 NOTICE 3-4-5 TRIANGLE

RATIO = 3 : 4 : 5  
 $AC : AB : BC = 15 : 17 : 14$   
 $9 : 12 : 15$

IF  $AB = 12$  THEN  $DB = 8$   
 IF  $CB = 15$  THEN  $EB = 10$

D.  $\frac{3 : 4 : 5}{6 : 8 : 10} = \frac{1}{2}$