

Assignment - Angle Properties.pdf

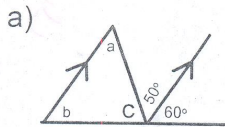
Solutions...

Section 7 In class Assignment.notebook

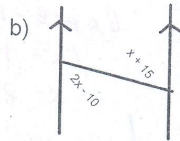
Chapter 7
In class Assignment

Name: Key

1) For each unknown angle, identify the measurement of the angle AND the property you used to solve it:

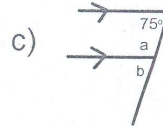


Answers:
c = 70 (SAT)
a = 50 (AIA)
b = 60 (SATT)

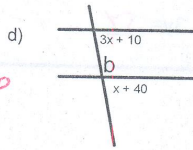


Answers:
(AIA)
x = 25
 $2x - 10 = \underline{40}$
 $x + 15 = \underline{40}$

$2x - 10 = x + 15$
 $x = 25$

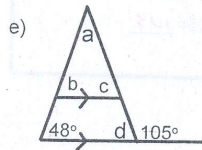


Answers:
 $a = \underline{105}$ (CIA)
 $b = \underline{75}$ (CA)

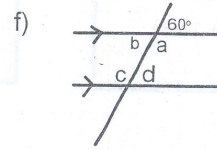


$3x + 10 = x + 40$
 $2x = 30$
 $x = 15$

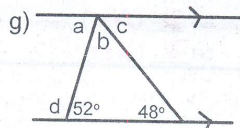
Answers: (CA)
x = 15
 $3x + 10 = \underline{55}$
 $x + 40 = \underline{55}$
b = 125 (CIA)



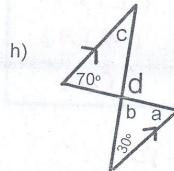
Answers:
 $d = \underline{75}$ (SAT)
 $c = \underline{75}$ (CA)
 $b = \underline{48}$ (CA)
 $a = \underline{57}$ (SATT)



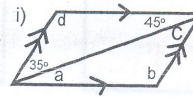
Answers:
 $a = \underline{120}$ (SAT)
 $b = \underline{60}$ (OAT)
 $c = \underline{120}$ (AIA)
 $d = \underline{60}$ (CA)



Answers:
 $a = \underline{52}$ (AIA)
 $b = \underline{80}$ (SATT)
 $c = \underline{48}$ (AIA)
 $d = \underline{128}$ (SAT)



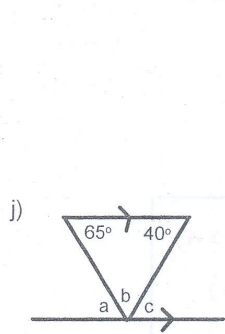
Answers:
 $a = \underline{70}$ (AIA)
 $b = \underline{80}$ (SATT)
 $c = \underline{30}$ (AIA)
 $d = \underline{100}$ (SAT)



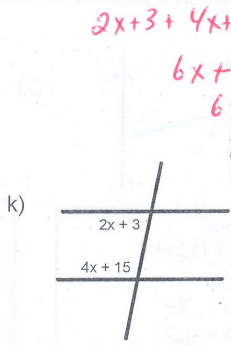
Answers:
 $a = \underline{45}$ (AIA)
 $b = \underline{100}$ (SATT)
 $c = \underline{35}$ (AIA)
 $d = \underline{100}$ (SATT)

Section 7 In class Assignment.notebook

3

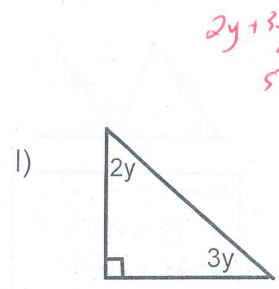


Answers:
 $a = 65^\circ$ (AIA)
 $b = 75^\circ$ (SATT)
 $c = 40^\circ$ (AFA)



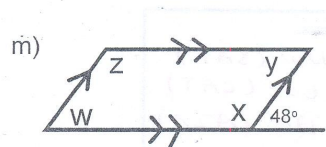
Answers: (CIA)
 $x = 27'$
 $2x + 3 = 57'$
 $4x + 15 = 123'$

$2x + 3 + 4x + 15 = 180$
 $6x + 18 = 180$
 $6x = 162$
 $x = 27$

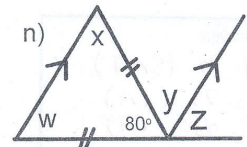


Answers: (CAT)
 $y = 18'$
 $2y = 36'$
 $3y = 54'$

$2y + 3y = 90$
 $5y = 90$
 $y = 18$

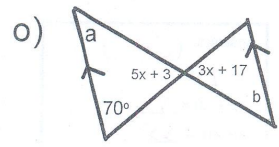


Answers:
 $x = 132^\circ$ (SAT)
 $y = 48^\circ$ (CIA)
 $w = 48^\circ$ (CA)
 $z = 132^\circ$ (CIA)



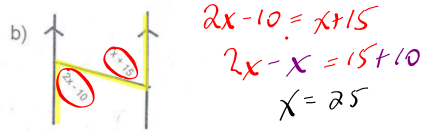
Answers:
 $w = 50^\circ$ (ITT)
 $x = 80^\circ$ (ITT)
 $y = 50^\circ$ (AFA)
 $z = 50^\circ$ (CA)

$\frac{180 - 80}{2}$



Answers:
 $x = 7$ (OAT)
 $5x + 3 = 38'$
 $3x + 17 = 38'$
 $a = 22^\circ$ (SATT)
 $b = 22^\circ$ (SATT)

$5x + 3 = 3x + 17$
 $2x = 14$
 $x = 7$

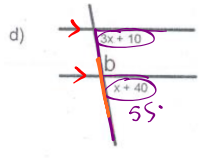


$$2x - 10 = x + 15$$

$$2x - x = 15 + 10$$

$$x = 25$$

Answers: (AIA)
 $x = 25^\circ$
 $2x - 10 = 40^\circ$
 $x + 15 = 40^\circ$



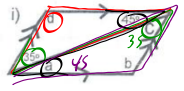
$$3x + 10 = x + 40$$

$$3x - x = 40 - 10$$

$$\frac{2x}{2} = \frac{30}{2}$$

$$x = 15^\circ$$

Answers: (CA)
 $x = 15^\circ$
 $3x + 10 = 55^\circ$
 $x + 40 = 55^\circ$
 $b = 135^\circ$ (SATT)



$$d = 100^\circ \text{ (SATT)}$$

$$c = 35^\circ \text{ (AIA)}$$

$$a = 45^\circ \text{ (AIA)}$$

$$b = 100^\circ \text{ (SATT)}$$

Answers:

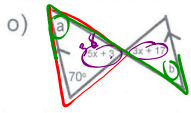


$$b = 75^\circ \text{ (SATT)}$$

$$a = 65^\circ \text{ (AIA)}$$

$$c = 40^\circ \text{ (AIA)}$$

Answers:



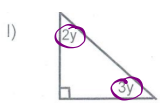
$$5x + 3 = 3x + 17$$

$$5x - 3x = 17 - 3$$

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

Answers: (OAT)
 $x = 7$
 $5x + 3 = 38^\circ$
 $3x + 17 = 38^\circ$
 $a = 72^\circ$ (SATT)
 $b = 72^\circ$ (AIA)



$$2y + 3y = 90^\circ$$

$$\frac{5y}{5} = \frac{90}{5}$$

$$y = 18$$

Answers: (CAT)
 $y = 18^\circ$
 $2y = 36^\circ$
 $3y = 54^\circ$

Homework... Questions

p. 72: #4-6

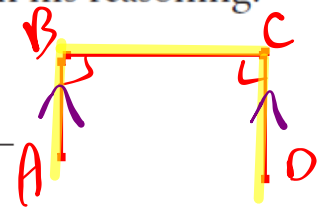
p. 78: #2, 8, 10, 12, 20

perpendicular

8. a) Joshua made the following conjecture: "If $AB \perp BC$ and $BC \perp CD$, then $AB \perp CD$." Identify the error in his reasoning.

Joshua's Proof

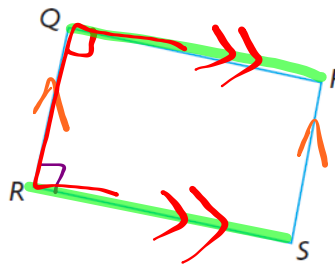
Statement	Justification
$AB \perp BC$	Given
$BC \perp CD$	Given
$AB \perp CD$	Transitive property



- b) $\rightarrow AB \parallel CD \quad \perp \quad CIA$
 Make a correct conjecture about perpendicular lines.

10. Jason wrote the following proof.
Identify his errors, and correct his proof.

Given: $QP \perp QR$
 $QR \perp RS$
 $QR \parallel PS$



Prove: $QPSR$ is a parallelogram.

Jason's Proof

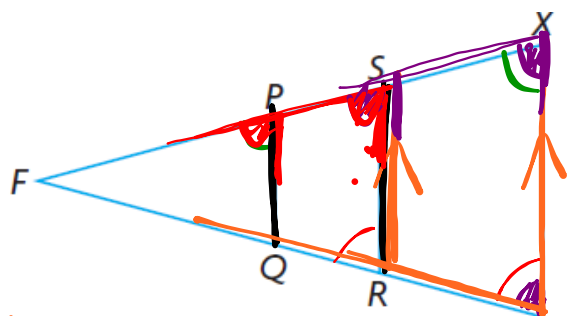
Statement	Justification
$\angle PQR = 90^\circ$ and $\angle QRS = 90^\circ$	Lines that are perpendicular meet at right angles. ✓
$QP \parallel RS$	Since the interior angles on the same side of a transversal are equal <i>supplementary</i> , QP and RS are parallel. ✓
$QR \parallel PS$	Given ✓
$QPSR$ is a parallelogram	$QPSR$ has two pairs of parallel sides. ✓

12. Given: $\triangle FOX$ is isosceles.

$\angle FOX = \angle FRS$

$\angle FXO = \angle FPQ$

Prove: a) $PQ \parallel SR$ and $SR \parallel XO$



b)

Statement	Justification
$\angle FOX = \angle FRS$	Given
$\therefore SR \parallel XO$	CA

a)

S	J
$\angle FSR = \angle FXO$	CA
$\angle FPQ = \angle FXO$	Given
$\angle FSR = \angle FPQ$	Transitive
$\therefore PQ \parallel SR$	CA

2.3

Angle Properties in Triangles

GOAL

Prove properties of angles in triangles, and use these properties to solve problems.

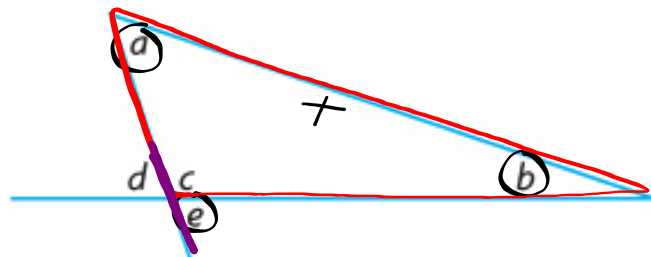
Construct a triangle with paper...

- tear off the angles and line them up!

CONJECTURE

Your Turn

Prove: $\angle e = \angle a + \angle b$



Answer

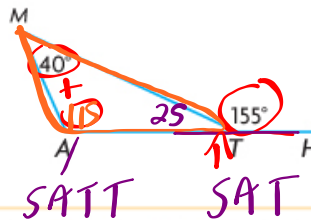


S	J
$\angle a + \angle b + \angle c = 180$	SAT T
$\angle c + \angle e = 180$	SAT
$\angle a + \angle b + \angle c = \angle c + \angle e$	Transitive
$\angle a + \angle b = \angle e$	☺

APPLY the Math

EXAMPLE 1 Using angle sums to determine angle measures

In the diagram, $\angle MTH$ is an **exterior angle** of $\triangle MAT$. Determine the measures of the unknown angles in $\triangle MAT$.



Serge's Solution

$$\begin{aligned} \angle MTA + \angle MTH &= 180^\circ \\ \angle MTA + (155^\circ) &= 180^\circ \\ \angle MTA &= 25^\circ \end{aligned}$$

$\angle MTA$ and $\angle MTH$ are supplementary since they form a straight line.

$$\begin{aligned} \angle MAT + \angle AMT + \angle MTA &= 180^\circ \\ \angle MAT + (40^\circ) + (25^\circ) &= 180^\circ \\ \angle MAT &= 115^\circ \end{aligned}$$

The sum of the measures of the interior angles of any triangle is 180° .

The measures of the unknown angles are:
 $\angle MTA = 25^\circ$; $\angle MAT = 115^\circ$.

EAT
 Exterior
 Angle
 Theorem

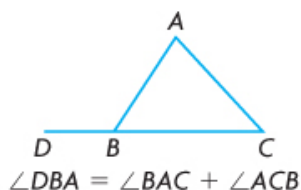
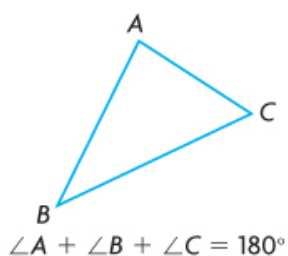
In Summary

Key Idea

- You can prove properties of angles in triangles using other properties that have already been proven.

Need to Know

- In any triangle, the sum of the measures of the interior angles is proven to be 180° .
- The measure of any exterior angle of a triangle is proven to be equal to the sum of the measures of the two non-adjacent interior angles.



HW... Section 2.3: #1 - 13

p. 90

Attachments

2s3e2 finalt.mp4

Assignment - Angle Properties.pdf