Homework... **Questions ?**
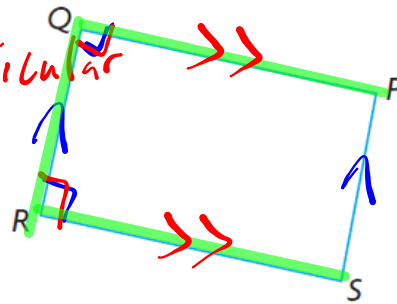
p. 72: #4-6

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

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

Given: $QP \perp QR$ *perpendicular* (handwritten)

$QR \perp RS$

$QR \parallel PS$

Prove: $QPSR$ is a parallelogram.

Jason's Proof

Statement	Justification
$\angle PQR = 90°$ and $\angle QRS = 90°$	Lines that are perpendicular meet at right angles. ✓ *Given* (handwritten)
$QP \parallel RS$	Since the interior angles on the same side of a transversal are equal, QP and RS are parallel. *error — supplementary* (handwritten)
$QR \parallel PS$	Given ✓
$QPSR$ is a parallelogram	$QPSR$ has two pairs of parallel sides.

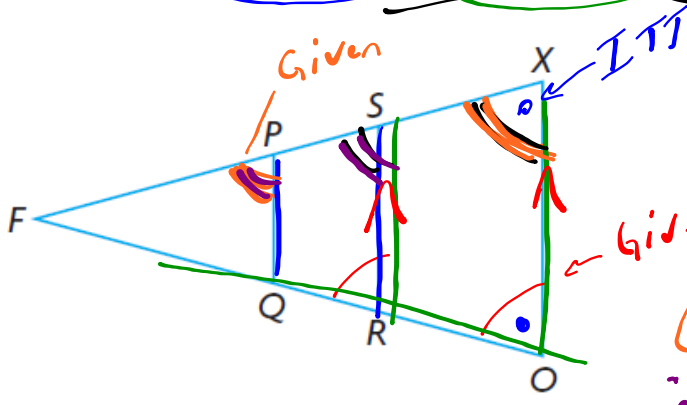**12.** Given: $\triangle FOX$ is isosceles.

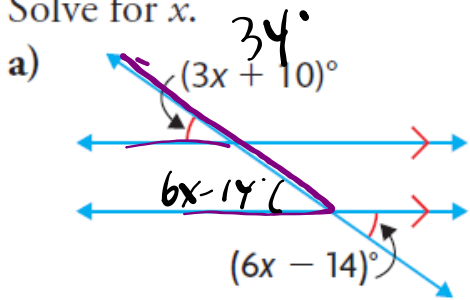 $\angle FOX = \angle FRS$

       $\angle FXO = \angle FPQ$

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

(Handwritten work)

S	J
$\angle FOX = \angle FRS$	Given
$\therefore SR \parallel XO$	CA

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

Diagram: triangle F with points P, S, X along top and Q, R, O along bottom. Labels: "Given", "ITT", "Given".

20. Solve for x.

a)

$34°$

$(3x + 10)°$

$6x - 14°$

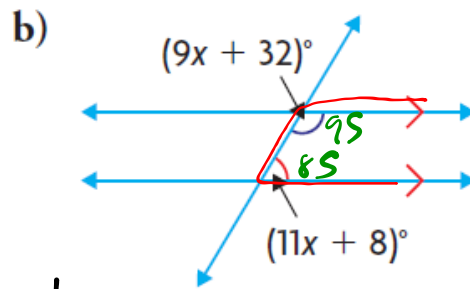$(6x - 14)°$

b)

$(9x + 32)°$

95

85

$(11x + 8)°$

a)

$6x - 14 = 3x + 10$

$6x - 3x = 10 + 14$

$$\frac{3x}{3} = \frac{24}{3}$$

$x = 8°$

b)

$9x + 32° + 11x + 8° = 180°$

$20x + 40 = 180$

$20x = 180 - 40$

$$\frac{20x}{20} = \frac{140}{20}$$

$x = 7°$

2.3   **Angle Properties in Triangles**

GOAL

Prove properties of angles in triangles, and use these properties to solve problems.
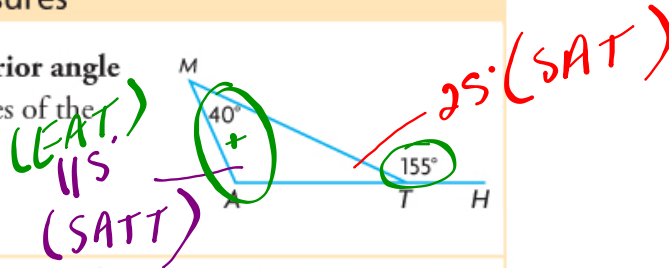
Construct a triangle with paper...

  - tear off the angles and line them up!

CONJECTURE

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 $\triangle MAT$.

[handwritten annotations: (EAT), 115, (SATT), 25·(SAT), with diagram showing M, 40°, A, T, H, 155°]

Serge's Solution

$\angle MTA + \angle MTH = 180°$ ············ ⟨ $\angle MTA$ and $\angle MTH$ are supplementary since they form a straight line.

$\angle MTA + (155°) = 180°$

$\angle MTA = 25°$

$\angle MAT + \angle AMT + \angle MTA = 180°$ ··· ⟨ The sum of the measures of the interior angles of any triangle is 180°.

$\angle MAT + (40°) + (25°) = 180°$

$\angle MAT = 115°$

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

Your Turn

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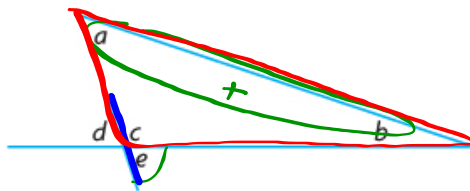
Answer

Statements	Justification
$\angle c + \angle e = 180°$	SAT
$\angle a + \angle b + \angle c = 180°$	SATT
$\angle c + \angle e = \angle a + \angle b + \angle c$	Transitive
$\therefore \angle e = \angle a + \angle b$	Subtraction

Your Turn

In the diagram for Example 3, $QP \parallel MR$. Determine the measures of $\angle MQO$, $\angle MOQ$, $\angle NOP$, $\angle OPN$, and $\angle RNP$.

Answer

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°.

$$\angle A + \angle B + \angle C = 180°$$

- 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.

$$\angle DBA = \angle BAC + \angle ACB$$
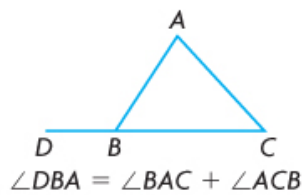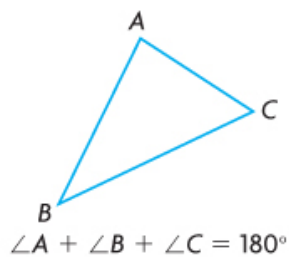
p. 90

HW... Section 2.3: #1 - 13

Attachments

2s3e2 finalt.mp4

2s3e3 finalt2.mp4