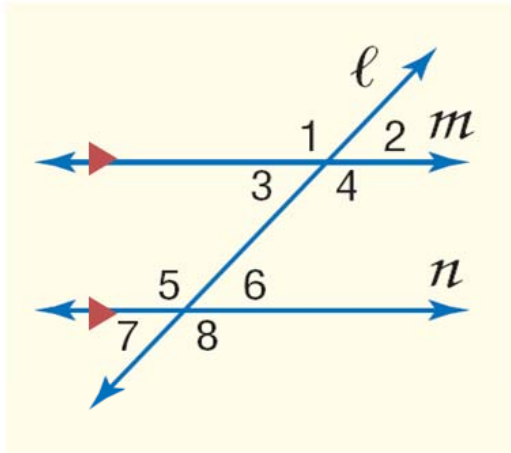


Objective: Use angle relationships to solve problems.

Concept

When **parallel lines are cut by a transversal**, the following angle relationships exist.



Vertical Angles are Congruent

$$m\angle 1 \cong m\angle 4 \quad m\angle 2 \cong m\angle 3$$

$$m\angle 5 \cong m\angle 8 \quad m\angle 6 \cong m\angle 7$$

Corresponding Angles are Congruent

$$m\angle 1 \cong m\angle 5 \quad m\angle 3 \cong m\angle 7$$

$$m\angle 2 \cong m\angle 6 \quad m\angle 4 \cong m\angle 8$$

Supplementary Angle Relationships

$$m\angle 3 + m\angle 5 = 180^\circ$$

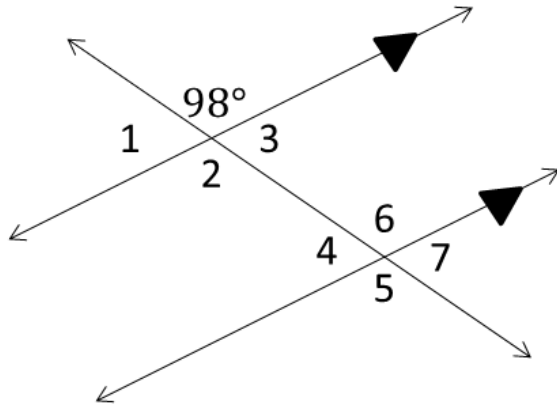
$$m\angle 4 + m\angle 6 = 180^\circ$$

Alternate Interior Angles are Congruent

$$m\angle 3 \cong m\angle 6 \quad m\angle 4 \cong m\angle 5$$

Objective: Use angle relationships to solve problems.

Find all angle measurements.



$$m\angle 1 = 82^\circ$$

$$m\angle 2 = 98^\circ$$

$$m\angle 3 = 82^\circ$$

$$m\angle 4 = 82^\circ$$

$$m\angle 5 = 98^\circ$$

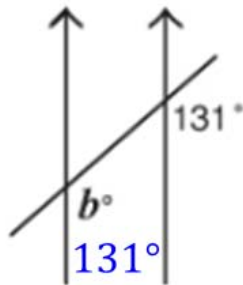
$$m\angle 6 = 98^\circ$$

$$m\angle 7 = 82^\circ$$

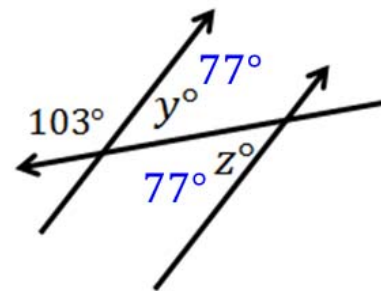
Objective: Use angle relationships to solve problems.

Given the lines are parallel, find the missing angles.

1.



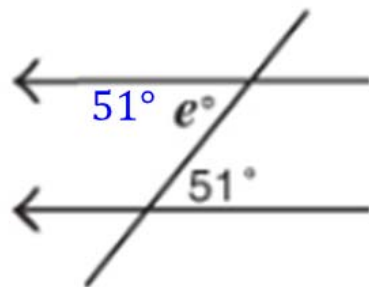
2.



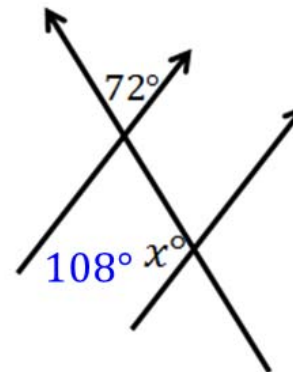
Objective: Use angle relationships to solve problems.

Given the lines are parallel, find the missing angles.

3.



4.



Objective: Find side and angle measures of similar triangles.

Concept

Given similar triangles, the **corresponding side measures are proportional** and the **corresponding angles are congruent**.

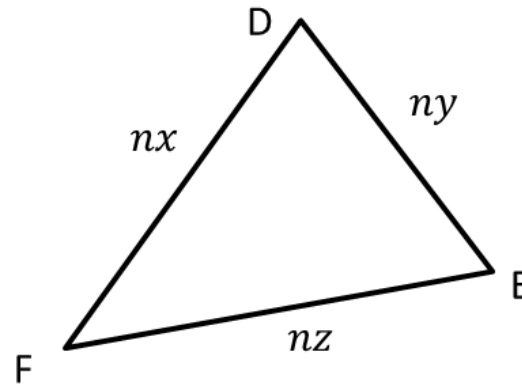
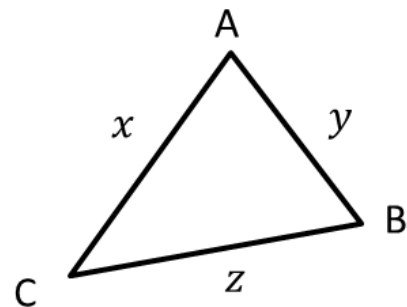
$$\begin{aligned} \angle A &\cong \angle D \\ \angle B &\cong \angle E \\ \angle C &\cong \angle F \end{aligned}$$

$$\Delta ABC \sim \Delta DEF$$

$$\frac{x}{nx} = \frac{y}{ny} = \frac{z}{nz}$$

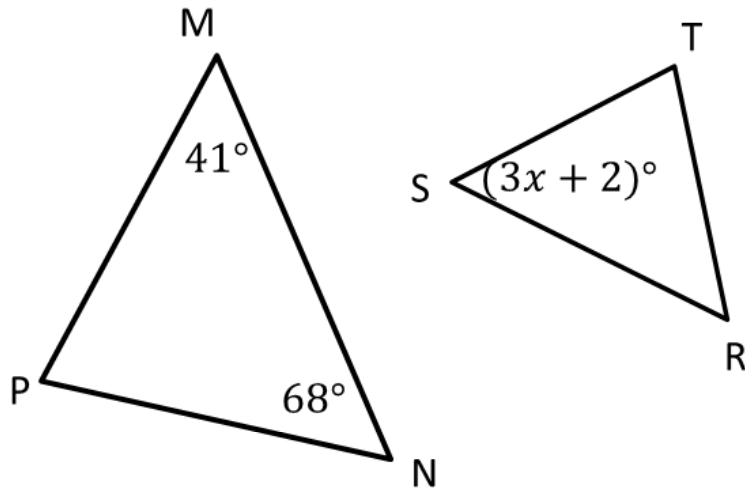
Or

$$\frac{x}{y} = \frac{nx}{ny}$$



Objective: Find side and angle measures of similar triangles.

If $\triangle MNP \sim \triangle RST$, find the value of x .



$$\angle S \cong \angle N$$

$$m\angle S = m\angle N$$

$$(3x + 2)^\circ = 68^\circ$$

$$3x + 2 = 68$$

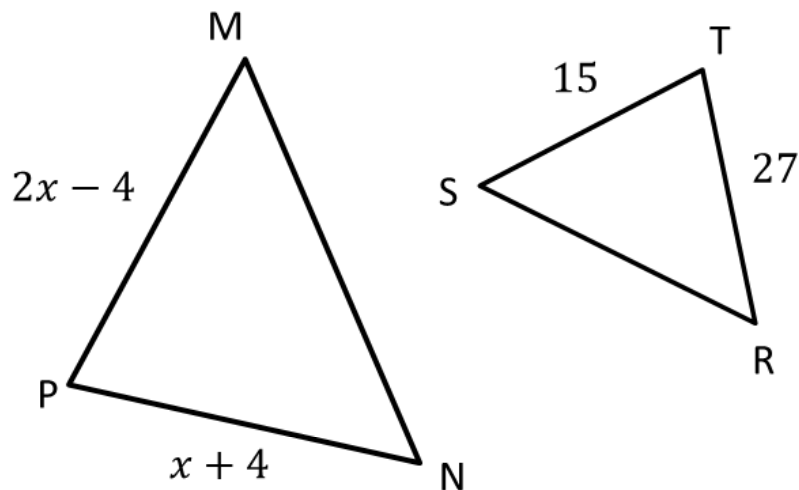
$$3x = 66$$

$$x = 22$$



Objective: Find side and angle measures of similar triangles.

If $\triangle MNP \sim \triangle RST$, find the value of x .



$$\frac{RT}{ST} = \frac{MP}{NP}$$

$$\frac{27}{15} = \frac{2x-4}{x+4}$$

$$\frac{9}{5} = \frac{2x-4}{x+4}$$

$$9(x+4) = 5(2x-4)$$

$$9x+36 = 10x-20$$

$$56 = x$$

$$\boxed{x = 56}$$

check

$$\frac{RT}{ST} = \frac{27}{15}$$

$$\frac{MP}{NP} = \frac{108}{60} = \frac{54}{30} = \frac{27}{15}$$

Objective: Calculate statistical measures and use them to draw conclusions.

Concept

Statistical Measures of Central Tendency

Mean: The sum of all data values divided by the number of data values.

Median: The middle data value when the values are in numerical order; the mean average of the two middle values for data sets with an even number of values. The median is sometimes called the second quartile.

Mode: The data value(s) with the greatest frequency; when all values have the same frequency, there is no mode.



Objective: Calculate statistical measures and use them to draw conclusions.

Concept

Quartiles and Interquartile Range

First Quartile, (Q_1): The data value halfway between the smallest data value and the median.

Third Quartile, (Q_3): The data value halfway between the median and the largest data value.

Interquartile Range, (IQR): The difference between the Third Quartile and First Quartile; $IQR = Q_3 - Q_1$

Outlier: a data value that falls more than 1.5 times the interquartile range above the third quartile or below the first quartile.



Objective: Calculate statistical measures and use them to draw conclusions.

The table lists the number of jumping jacks students can do in one minute.

Male	10	13	12	18	19	23	24	13
	10	12	13 Q1	15.5 13	18	19 Q3	23	24
Female	7	10	18	22	18	21	12	15

a) Find the following statistical measures.

Male:

Mean $\frac{132}{8} = 16.5$ Median $\frac{13+18}{2} = 15.5$ Q1 13 Q3 19

IQR 6 1.5IQR 9 LB 4 UB 28 $\sigma = 4.92$ (standard deviation)

$Q1 - 1.5IQR = 13 - 9 = 4$ (LB)
 $Q3 + 1.5IQR = 19 + 9 = 28$ (UB)

Female:

Mean _____ Median _____ Q1 _____ Q3 _____

IQR _____ 1.5IQR _____ LB _____ UB _____ $\sigma = 5.00$

Objective: Calculate statistical measures and use them to draw conclusions.

The table lists the number of jumping jacks students can do in one minute.

Male	10	13	12	18	19	23	24	13
	10	12	13	13	18	19	23	24
Female	7	10	18	22	18	21	12	15
	7	10	12	15	18	18	21	22

a) Find the following statistical measures.

Male:

Mean 16.5 Median 15.5 Q1 13 Q3 19

IQR 6 1.5IQR 9 LB 4 UB 28 $\sigma = 4.92$

Female:

Mean 15.375 Median 16.5 Q1 12 Q3 18

IQR 6 1.5IQR 9 LB 3 UB 27 $\sigma = 5.00$

Objective: Calculate statistical measures and use them to draw conclusions.

The table lists the number of jumping jacks students can do in one minute.

Male	10	13	12	18	19	23	24	13
Female	7	10	18	22	18	21	12	15

b) State any outliers in each data set.

Male: none

Female: none

c) State the mode(s) for each data set.

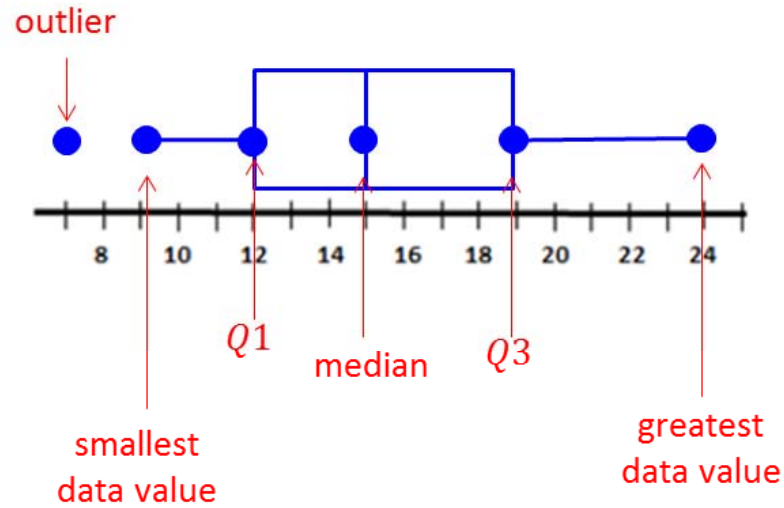
Male: 13

Female: 18

Objective: Calculate statistical measures and use them to draw conclusions.

Concept

Making a Box Plot



Objective: Calculate statistical measures and use them to draw conclusions.

The table lists the number of jumping jacks students can do in one minute.

Male	10	13	12	18	19	23	24	13
Female	7	10	18	22	18	21	12	15

d) Make a box plot for each data set.

