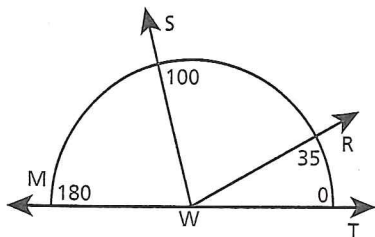


Name Key (start w/ page 26) Date _____

Add and Subtract to Find Angle Measures

Find the measure of angles by adding and subtracting known measures.



Find the measure of $\angle SWR$.

This diagram shows the measure of each angle from 0° . Measure can be abbreviated as m .

$$m\angle RWT = 35^\circ \quad m\angle SWT = 100^\circ$$

To find $m\angle SWR$, subtract the known measures.

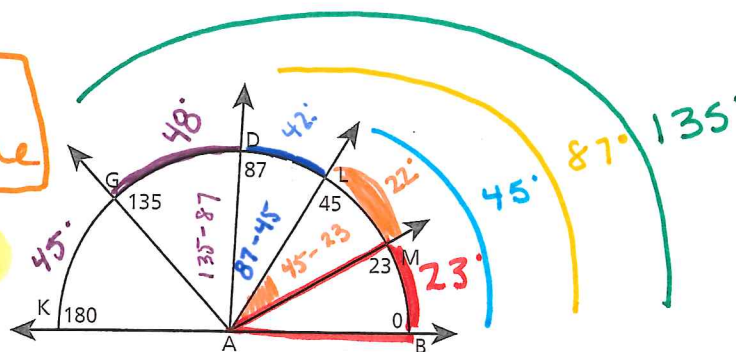
$$m\angle SWT - m\angle RWT = m\angle SWR.$$

$$100^\circ - 35^\circ = 65^\circ$$

$$m\angle SWR = 65^\circ$$

Use the diagram. Show how you add or subtract known measures to find the measures of the given angles.

Teacher Notes:
Do picture here first
10 mins + do # 6, 8, 10 w/ them



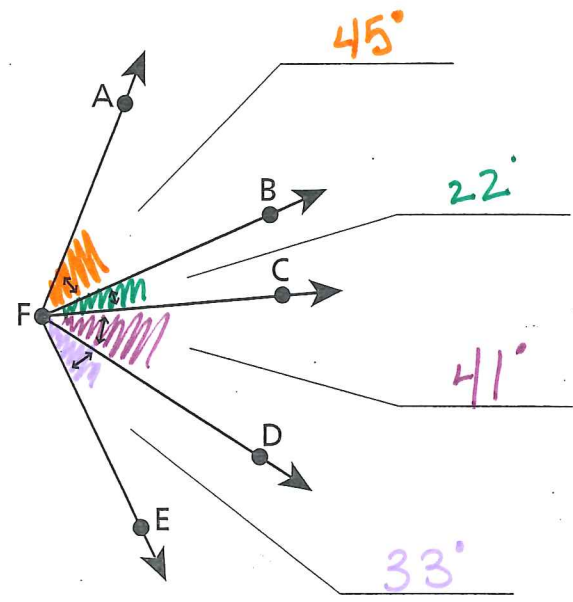
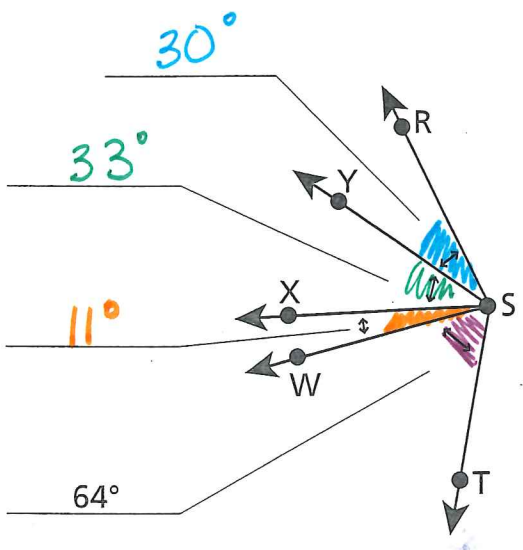
- | | |
|---|---|
| 1 $m\angle MAB = 23^\circ$ | 2 $m\angle LAB = 45^\circ$ |
| 3 $m\angle DAB = 87^\circ$ | 4 $m\angle GAB = 135^\circ$ |
| 5 $m\angle KAB = 180^\circ$ | 6 $m\angle DAM = 44 + 22 = 64^\circ$ |
| 7 $m\angle KAG = 45^\circ$ | 8 $m\angle DAK = 45 + 48 = 93^\circ$ |
| 9 $m\angle LAG = 48 + 42 = 90^\circ$ | 10 $m\angle MAG = 48 + 42 + 22 = 112^\circ$ |
| 11 $m\angle LAK = 180 - 45 = 135^\circ$ | 12 Name two pairs of congruent angles. |

$$\angle GAB \cong \angle LAK$$

$$\angle LAB \cong \angle KAG$$

Calculate Angle Measures

Label the diagram using the given measures. Then find the measure of angles by adding and subtracting known measures.



Label the angles. The first one is done for you.

- ① $m\angle WST = 64^\circ$
- ② $m\angle RSY = 30^\circ$
- ③ $m\angle WSX = 11^\circ$
- ④ $m\angle XSY = 33^\circ$

Do this side w/ them 5 mins

Find these measures:

- ⑤ $m\angle RSX = 63^\circ$
- ⑥ $m\angle RST = 138^\circ$
- ⑦ $m\angle TSX = 75^\circ$
- ⑧ $m\angle WSY = 44^\circ$
- ⑨ $m\angle TSY = 108^\circ$
- ⑩ $m\angle WSR = 74^\circ$

Label the angles.

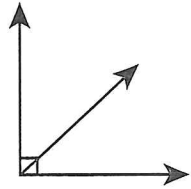
- ⑪ $m\angle AFB = 45^\circ$
- ⑫ $m\angle BFC = 22^\circ$
- ⑬ $m\angle DFE = 33^\circ$
- ⑭ $m\angle CFD = 41^\circ$

Find these measures:

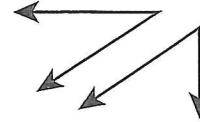
- ⑮ $m\angle AFC = 67^\circ$
- ⑯ $m\angle DFB = 63^\circ$
- ⑰ $m\angle AFD = 108^\circ$
- ⑱ $m\angle BFE = 96^\circ$
- ⑲ $m\angle EFA = 141^\circ$
- ⑳ $m\angle EFC = 74^\circ$

Complementary and Perpendicular Angles

Two angles are **complementary** if the sum of their measures is 90° . Each angle is the complement of the other.



Adjacent complementary angles share a common side and vertex. The sum of the two angle measures is 90° .



Nonadjacent complementary angles do not share a common side or vertex. The sum of the two angle measures is 90° .

Use the given measure to determine the **complementary angle's measure**. Label each illustration as **adjacent** or **nonadjacent**.

Do #1 + #2 w/ them

Perpendicular lines

$90 - 35 = 55$

$m\angle OLN = 55^\circ$

$m\angle NLM = 35^\circ$

Type: adjacent

all questions are compl.

$m\angle PRQ = 30^\circ$

$m\angle UST = 60^\circ$

Type: nonadjacent

$m\angle JKL = 65^\circ$

$m\angle AJB = 25^\circ$

Type: nonadjacent

$m\angle XTY = 42^\circ$

$m\angle ATX = 48^\circ$

Type: adjacent

$m\angle TOP = 72^\circ$

$m\angle MOT = 18^\circ$

Type: adjacent

$m\angle XMW = 38^\circ$

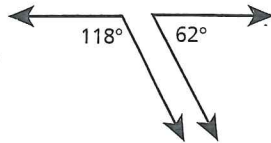
$m\angle SMW = 52^\circ$

Type: adjacent

Supplementary and Linear Angles

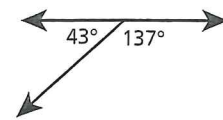
Two angles are supplementary if the sum of their measures is 180° . Each angle is the supplement of the other. If the supplementary angles are adjacent, then they are also known as a linear pair.

Supplementary Pair



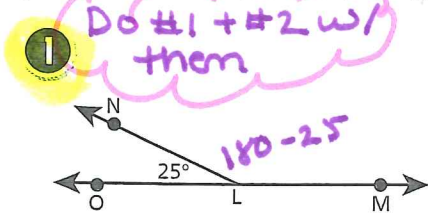
The sum of the angles is 180° . They are not adjacent so they are a supplementary pair.

Linear Pair



The sum of these adjacent angles is 180° . If the two sides they don't share form opposite rays, then they are also called a linear pair.

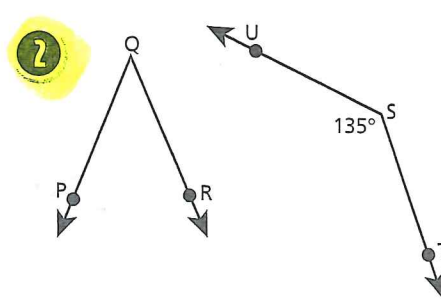
Use the given measure to determine the supplementary angle's measure. If the pair form a linear pair, label the illustration linear.



$m\angle OLN = 25^\circ$

$m\angle NLM = 155^\circ$

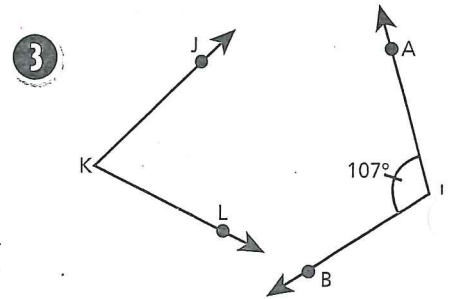
linear pairs



$m\angle PQR = 45^\circ$

$m\angle UST = 135^\circ$

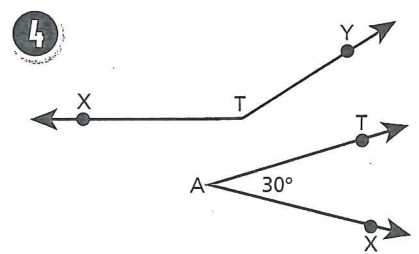
linear pairs



$m\angle JKL = 73^\circ$

$m\angle AIB = 107^\circ$

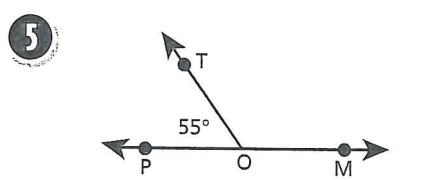
X



$m\angle XTY = 150^\circ$

$m\angle TAX = 30^\circ$

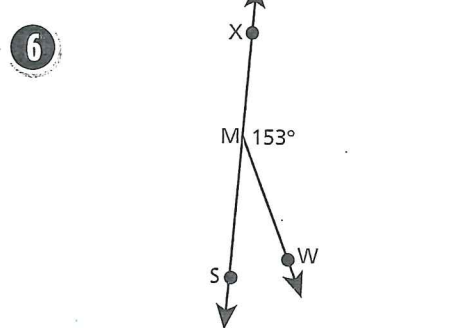
linear pairs



$m\angle TOP = 55^\circ$

$m\angle MOT = 125^\circ$

linear pairs



$m\angle XMW = 153^\circ$

$m\angle SMW = 27^\circ$

linear pairs

Find Values of Angles

Supplementary or linear pairs have sums of 180° . Complementary pairs have sums of 90° . Use the given information to find the missing angle measures.

1 $\angle A$ and $\angle B$ are supplementary angles.

$m\angle A = 32^\circ$

$\angle A + \angle B = 180^\circ$
 $32 + \angle B = 180^\circ$
 -32

$m\angle B =$ _____

$\angle B = 148^\circ$

Why? Just show work instead ;)

2 $\angle C$ and $\angle D$ are supplementary angles.

$m\angle C = 102^\circ$

$m\angle D =$ 78

Why? _____

3 $\angle X$ and $\angle Y$ are linear angles. *are suppl.*

$m\angle X = 98^\circ$

$\angle X + \angle Y = 180$
 $98 + \angle Y = 180$
 $Y = 82$

$m\angle Y =$ 82

Why? _____

4 $\angle G$ and $\angle H$ are complementary angles.

$m\angle G = 41^\circ$

$\angle G + \angle H = 90^\circ$
 $41 + \angle H = 90$
 $\angle H = 49$

$m\angle H =$ 49

Why? _____

5 $\angle M$ and $\angle P$ are supplementary angles.

$m\angle M = 43^\circ$

$m\angle P =$ 137

Why? _____

6 $\angle J$ and $\angle Y$ are linear angles.

$m\angle Y = 93^\circ$

$m\angle J =$ 87

Why? _____

7 $\angle T$ and $\angle V$ are linear angles.

$m\angle T = 57^\circ$

$m\angle V =$ 123

Why? _____

8 $\angle F$ and $\angle O$ are supplementary angles.

$m\angle F = 111^\circ$

$m\angle O =$ 69

Why? _____

9 $\angle E$ and $\angle R$ are complementary angles.

$m\angle E = 16^\circ$

$m\angle R =$ 74

Why? _____

10 $\angle S$ and $\angle U$ are supplementary angles.

$m\angle S = 18^\circ$

$m\angle U =$ 162

Why? _____

