Main Ideas/Questions	Notes	1.4 B Measuring Angles

Measuring Angles
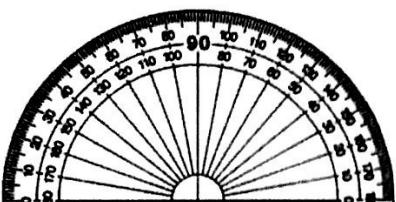
- One way to measure the size of an angle is in __degrees__.

- A __Circle__ has __360__. So 1 degree is $\frac{1}{360}$ of the circle.

- A __protractor__ forms a half circle and measures angles from 0° - 180°

Example
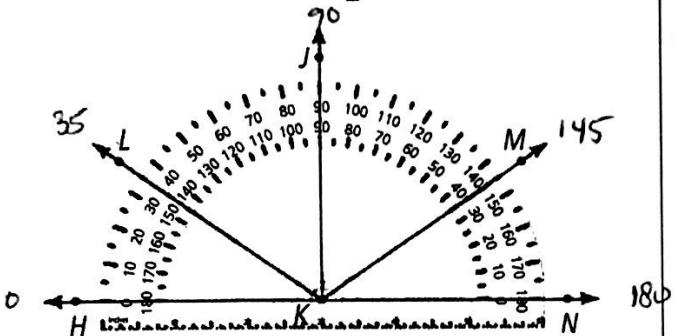
a) Find $m\angle LKN$ __$180-35 = 145°$__

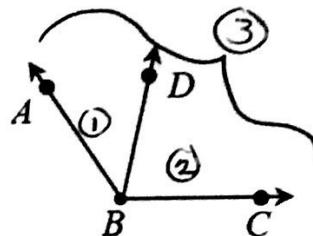b) Find $m\angle JKL$ __$90-35 = 55°$__

c) Find $m\angle JKN$ __$90°$__

d) Find $m\angle HKN$ __$180°$__

ANGLE ADDITION Postulate

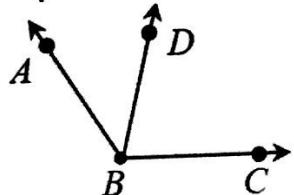If D is in the interior of $\angle ABC$, then

$$m\angle ABD + m\angle DBC = m\angle ABC$$

2 slices add to = total

Examples

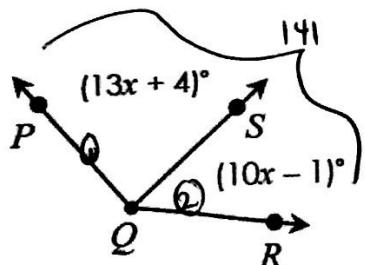Use the diagram below to answer questions 1 and 2

1. If $m\angle ABD = 48°$ and $m\angle DBC = 78°$, find $m\angle ABC$.

$$48 + 78 = 126°$$

2. If $m\angle DBC = 74°$ and $m\angle ABC = 119°$, find $m\angle ABD$.

$$119 - 74 = 45°$$

3. If $m\angle PQR = 141°$, find each measure.

$13x+4 + 10x-1 = 141$

$23x + 3 = 141$

$-3 \quad -3$

$\dfrac{23x}{23} = \dfrac{138}{23}$

$x = 6$

$\angle PQS = 13(6)+4$
$= 82$

$\angle SQR = 10(6) - 1$

$x = \underline{6}$

$m\angle PQS = \underline{82°}$

$m\angle SQR = \underline{59°}$

4. If $m\angle DEF = (7x + 4)°$, $m\angle DEG = (5x + 1)°$, and $m\angle GEF = 23°$, find each measure.
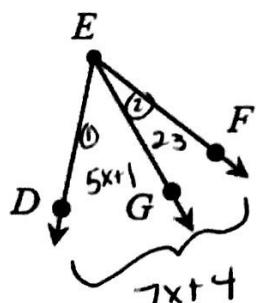
$$5x + 1 + 23 = 7x + 4$$
$$5x + 24 = 7x + 4$$
$$\quad -4 \qquad\qquad -4$$
$$5x + 20 = 7x$$
$$-5x \qquad\quad -5x$$
$$\frac{20}{2} = \frac{2x}{2}$$
$$10 = x$$

$x = \underline{10}$

$m\angle DEG = \underline{51}$

$m\angle DEF = \underline{74}$
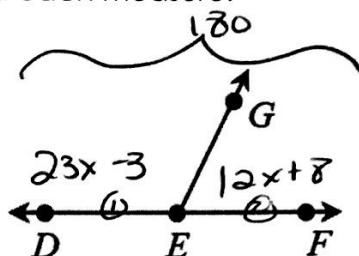
$\angle DEG = 5(10) + 1$
$= 51$

$\angle DEF = 7(10) + 4$
$= 74$

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5. If $\angle DEF$ is a straight angle, $m\angle DEG = (23x - 3)°$, and $m\angle GEF = (12x + 8)°$, find each measure.

180

$x = \underline{5}$

$m\angle DEG = \underline{112°}$

$m\angle GEF = \underline{68°}$

$m\angle DEF = \underline{180°}$

$$23x - 3 + 12x + 8 = 180$$
$$35x + 5 = 180$$
$$\quad\; -5 \quad -5$$
$$\frac{35x}{35} = \frac{175}{35} \qquad X = 5$$

$\angle DEG = 23(5) - 3$

$\angle GEF = 12(5) + 8$

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6. If $m\angle TUW = (5x + 3)°$, $m\angle WUV = (10x - 5)°$, and $m\angle TUV = (17x - 16)°$, find each measure.

$x = \underline{7}$

$m\angle TUW = \underline{38°}$
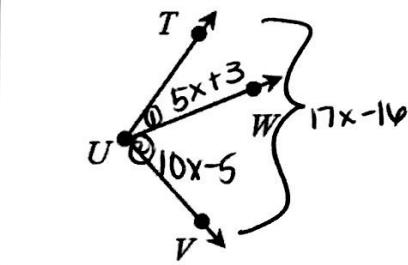
$m\angle WUV = \underline{65°}$

$m\angle TUV = \underline{103°}$

$$5x + 3 + 10x - 5 = 17x - 16$$
$$15x - 2 = 17x - 16$$
$$-15x \qquad\quad -15x$$
$$-2 = 2x - 16$$
$$+16 \qquad\; +16$$
$$\frac{14}{2} = \frac{2x}{2}$$
$$X = 7$$

$\angle TUW = 5(7) + 3$

$\angle WUV = 10(7) - 5$

$\angle TUV = 17(7) - 16$