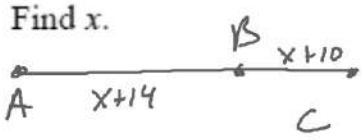
Points A, B, and C are collinear. Point B is between A and C. Solve for x.

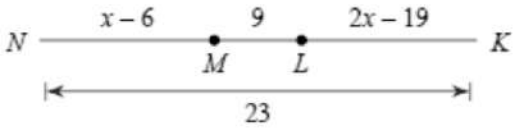
11) $AC = 3x + 3$, $AB = -1 + 2x$, and $BC = 11$. Find x.

12) $AC = 22$, $BC = x + 14$, and $AB = x + 10$. Find x.



$$x+14+x+10=22$$
$$2x+24=22$$
$$-24\quad -24$$
$$2x=-2$$
$$x=-1$$

Solve for x.

13) 

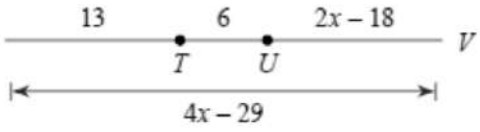
$NM+ML+LK=NK$

$x-6+9+2x-19=23$

$3x-16=23$

$3x=39$

$x=13$

14) 

$ST+TU+UV=SV$

$13+6+2x-18=4x-29$

$2x+1=4x-29$

$-4x \quad -4x$

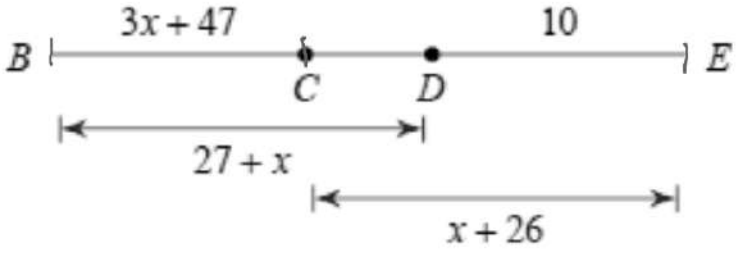
$-2x+1=-29$

$-2x=-30$

$x=15$

Find the length indicated.

15) Find CE



$BC = 3x+47$

$CD = ?$

$BD = 27+x$

$CE = x+26$

$DE = 10$

$BE = BE$

$BD + DE = BC + CE$

$27+x+10 = 3x+47+x+26$

$x+37 = 4x+73$

$37 = 3x+73$

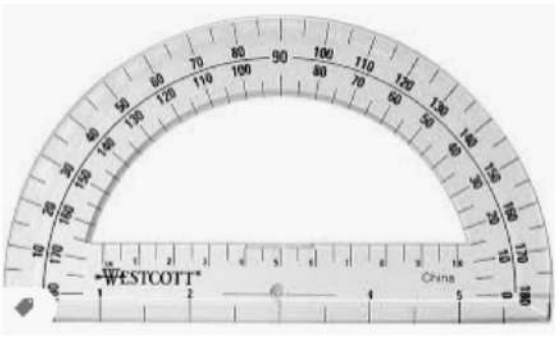
$-73 \quad -73$

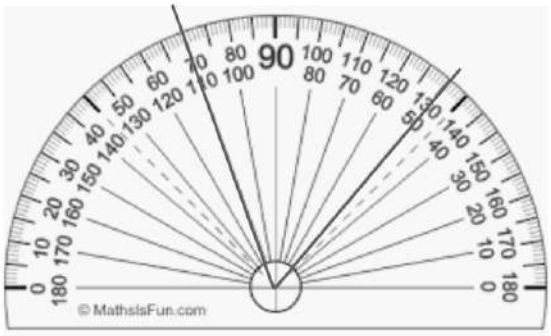
$-36 = 3x$

$x = -12$

$CE = -12+26$

$= 14$


WESTCOTT
China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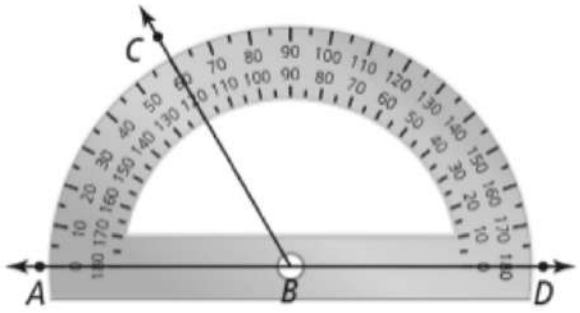
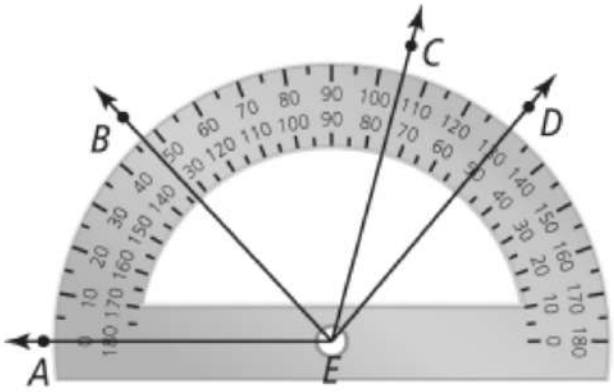
Protractor Postulate

Given $\overrightarrow{BA}$ and a point C not on $\overrightarrow{BA}$, a unique real number from 0 to 180 can be assigned to $\overrightarrow{BC}$.

0 is assigned to $\overrightarrow{BA}$.

180 is assigned to $\overrightarrow{BD}$.





Use the diagram to find the measure of the following angles:

<AEC $= 105^\circ$

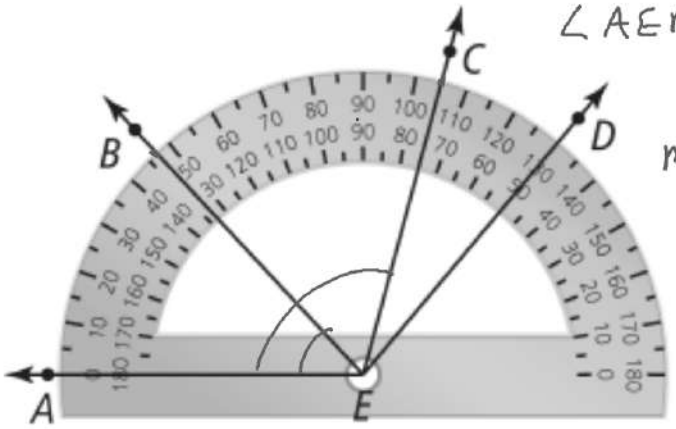
<AEB $= 47^\circ$

<AED $= 130^\circ$

What is $m\angle BEC$?

$\angle AEC = 105$

$\angle AEB = 47$



$m\angle BEC = m\angle AEC - m\angle AEB$

$= 105 - 47$

$= 58^\circ$

What is the m<CED?

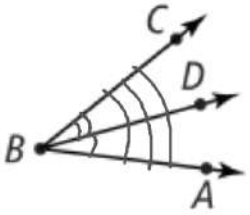
$130 - 105$

25°

Angle Addition Postulate

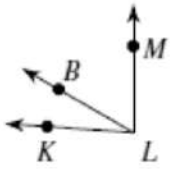
If point D is in the interior of $\angle ABC$, then $m\angle ABD + m\angle DBC = m\angle ABC$.

If...



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

1) Find $m\angle KLM$ if $m\angle KLB = 26°$ and $m\angle BLM = 60°$.

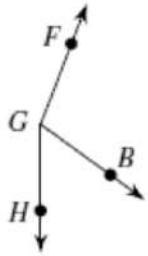


$m\angle KLB + m\angle BLM = m\angle KLM$

$26° + 60° =$

$86° = m\angle KLM$

2) Find $m\angle FGH$ if $m\angle FGB = 105°$ and $m\angle BGH = 54°$.

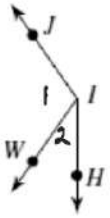


$m\angle FGH = m\angle FGB + m\angle BGH$

$= 105 + 54$

$m\angle FGH = 159$

17) Find $m\angle HIW$ if $m\angle WIJ = 10x$, $m\angle HIJ = 145°$, and $m\angle HIW = 2x + 13$.



$m\angle JIW + m\angle WIH = m\angle JIH$

$10x + 2x + 13 = 145$

$12x + 13 = 145$

$12x = 132$

$x = 11$

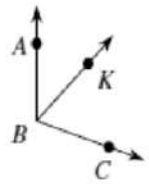
$m\angle HIW = 2x + 13$

$2(11) + 13$

$22 + 13$

35

18) $m\angle ABC = 17x + 8$, $m\angle ABK = 42°$, and $m\angle KBC = 12x - 4$. Find $m\angle ABC$.



$m\angle ABC = m\angle ABK + m\angle KBC$

$17x + 8 = 42 + 12x - 4$

$17x + 8 = 12x + 38$

$-12x \quad -12x$

$5x + 8 = 38$

$5x = 30$

$x = 6$

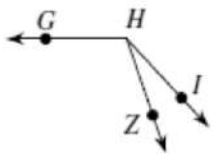
$m\angle ABC = 17x + 8$

$17(6) + 8$

$102 + 8$

$110°$

19) $m\angle ZHG = 11x - 1$, $m\angle IHZ = 24°$, and $m\angle IHG = 12x + 13$. Find $m\angle IHG$.



$m\angle IHG = 133$

$m\angle IHG = m\angle GHZ + m\angle ZHI$

$12x + 13 = 11x - 1 + 24$

$12x + 13 = 11x + 23$

$x = 10$

20) $m\angle GFN = 4x + 10$, $m\angle NFE = 14x + 3$, and $m\angle GFE = 157°$. Find $m\angle NFE$.