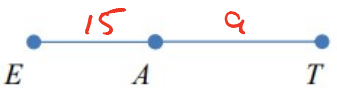
Tools For Geometry – Addition Postulates

Hw Section 1.4 Name_____

Label the picture, then find the missing segment.

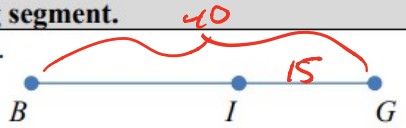
1.



$EA = 15$
$AT = 9$
Find ET

$ET = EA + AT$
$ET = (15) + (9)$
$ET = 24$

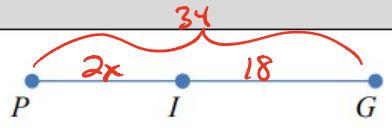
2.



$IG = 15$
$BG = 40$
Find BI

$BG = BI + IG$
$40 = BI + (15)$
$25 = BI$

3.

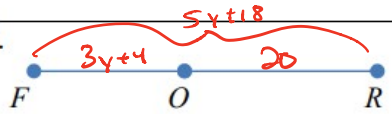


$PI = 2x$
$IG = 18$
$PG = 34$
Find PI

① $PI + IG = PG$
$(2x) + (18) = 34$
$2x = 16$
$x = 8$

② $PI = 2x$
$= 2(8)$
$PI = 16$

4.



$FO = 3y + 4$
$OR = 20$
FR $= 5y + 18$

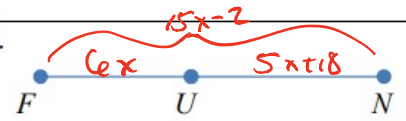
Find *y*

$FR = FO + OR$
$5y+18 = (3y+4) + (20)$
$5y+18 = 3y+24$
$2y+18 = 24$
$2y = 6$
$y = 3$

Find *FO*

$FO = 3y + 4$
$= 3(3) + 4$
$= 9 + 4$
$FO = 13$

5.



$FU = 6x$
$UN = 5x + 18$
$FN = 15x - 2$

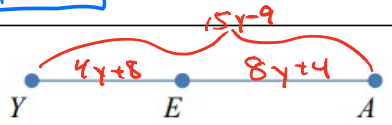
Find *x*

$FN = FU + UN$
$15x-2 = (6x) + (5x+18)$
$15x-2 = 11x+18$
$4x-2 = 18$
$4x = 20$
$x = 5$

Find *FN*

$FN = FU + UN$
$= (6x) + (5x+18)$
$= 11x + 18$
$= 11(5) + 18$
$= 55 + 18$
$FN = 73$

6.



$EA = 8y + 4$
$YE = 4y + 8$
$YA = 15y - 9$

Find *y*

$YA = YE + EA$
$15y-9 = (4y+8) + (8y+4)$
$15y-9 = 12y+12$
$3y-9 = 12$
$3y = 21$
$y = 7$

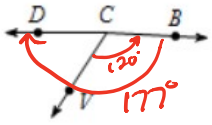
Find *EA*

$EA = 8y + 4$
$= 8(7) + 4$
$= 56 + 4$
$EA = 60$

Use Angle Addition Postulate to answer the following.

7.

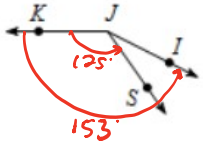
$m\angle BCV = 120°$ and $m\angle BCD = 177°$.
Find $m\angle VCD$.



$m\angle BCD = m\angle BCV + m\angle VCD$
$177° = (120°) + m\angle VCD$
$57° = m\angle VCD$

8.

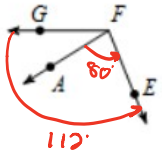
Find $m\angle IJS$ if $m\angle IJK = 153°$ and $m\angle SJK = 125°$.



$m\angle KJS + m\angle SJI = m\angle KJI$
$(125°) + m\angle SJI = 153°$
$m\angle SJI = 28°$

9.

$m\angle EFG = 112°$ and $m\angle EFA = 80°$.
Find $m\angle AFG$.

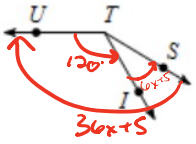


$m\angle EFG = m\angle EFA + m\angle AFG$
$112° = (80°) + m\angle AFG$
$32° = m\angle AFG$

Tools For Geometry – Addition Postulates

Hw Section 1.4 Name_____

10. $m\angle ITU = 120°$, $m\angle STI = 6x + 5$, and $m\angle STU = 36x + 5$. Find x.



$m\angle STU = m\angle STI + m\angle ITU$

$36x+5 = (6x+5) + (120)$

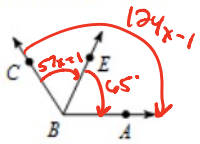
$36x+5 = 6x+125$

$30x+5 = 125$

$30x = 120$

$x = 4$

11. Find x if $m\angle CBE = 57x + 1$, $m\angle CBA = 124x - 1$, and $m\angle EBA = 65°$.



$m\angle CBA = m\angle CBE + m\angle EBA$

$124x-1 = (57x+1) + (65)$

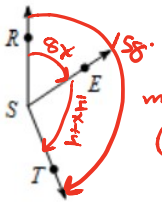
$124x-1 = 57x+66$

$124x = 57x+67$

$67x = 67$

$x = 1$

12. $m\angle RST = 158°$, $m\angle RSE = 8x$, and $m\angle EST = 14x + 4$. Find x.



$m\angle RSE + m\angle EST = m\angle RST$

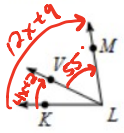
$(8x) + (14x+4) = 158°$

$22x + 4 = 158°$

$22x = 154$

$x = 7$

13. Find $m\angle KLV$ if $m\angle VLM = 55°$, $m\angle KLV = 4x + 2$, and $m\angle KLM = 12x + 9$.



$m\angle KLV + m\angle VLM = m\angle KLM$

$(4x+2) + (55) = 12x+9$

$4x+57 = 12x+9$

$57 = 8x+9$

$48 = 8x$

$6 = x$

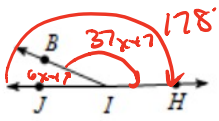
$m\angle KLV = 4x+2$

$= 4(6)+2$

$= 24+2$

$m\angle KLV = 26°$

14. Find $m\angle JIB$ if $m\angle BIH = 37x + 7$, $m\angle JIH = 178°$, and $m\angle JIB = 6x - 1$.



$m\angle JIB + m\angle BIH = m\angle JIH$

$(6x-1) + (37x+7) = 178°$

$43x+6 = 178$

$43x = 172$

$x = 4$

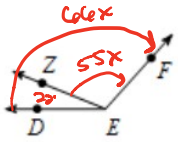
$m\angle JIB = 6x-1$

$= 6(4)-1$

$= 24-1$

$m\angle JIB = 23$

15. $m\angle DEF = 66x$, $m\angle DEZ = 22°$, and $m\angle ZEF = 55x$. Find $m\angle ZEF$.



$m\angle DEZ + m\angle ZEF = m\angle DEF$

$(22) + (55x) = 66x$

$22 = 11x$

$2 = x$

$m\angle ZEF = 55x$

$= 55(2)$

$m\angle ZEF = 110$

ALGEBRA REVIEW

SOLVE

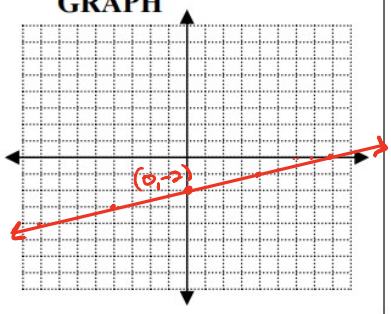
$3 \cdot 6 = 3 \cdot 2 + \frac{x}{3} \cdot 3$

$18 = 6 + x$

$12 = x$

GRAPH

$y = \frac{1}{4}x - 2$



MULTIPLY (distribute)

$2x(-2x - 3)$

$= -4x^2 - 6x$

SOLVE

$3 - 7y = 5y + 3$

$3 = 12y + 3$

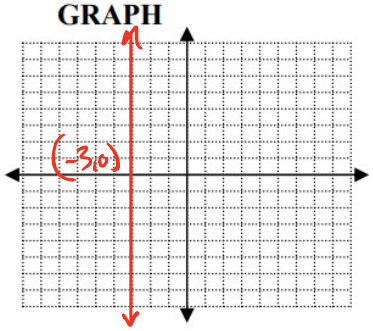
$0 = 12y$

$0 = y$

GRAPH

$x = -3$

vertical line



FACTOR

Factor out the greatest common factor (undistribute)

$16x + 40$

$= 8(2x + 5)$