Worksheet #2 Geometry – F11 Name _____

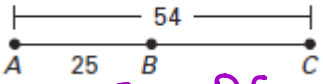
Segment & Angle Addition

Use the Segment Addition Postulate to find the indicated length.

1. Find RT.

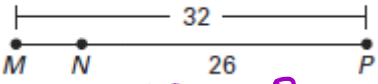
RS + ST = RT
17 + 8.5 = RT
25.5 = RT

2. Find BC.



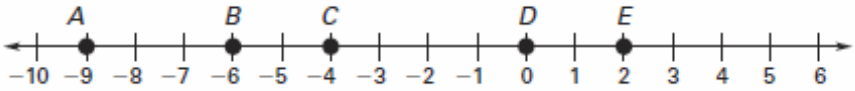
AB + BC = AC
25 + BC = 54
BC = 29

3. Find MN.



MN + NP = MP
MN + 26 = 32
MN = 6

Use the number line to find the indicated distance.



4. AB = 3

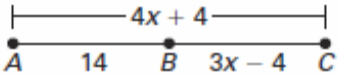
5. BD = 6

6. CE = 6

7. DE = 2

Find the indicated length.

8. Find AC

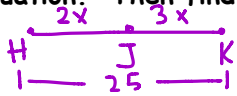


AB + BC = AC
14 + 3x − 4 = 4x + 4
3x + 10 = 4x + 4
6 = x

AC = 4x + 4
AC = 4(6) + 4
AC = 28

Point J is between H and K on HK. Use the given information to write an equation in terms of x. Solve the equation. Then find HJ and JK.

9. $HJ = 2x$
$JK = 3x$
$KH = 25$



HJ + JK = HK
2x + 3x = 25
5x = 25
x = 5

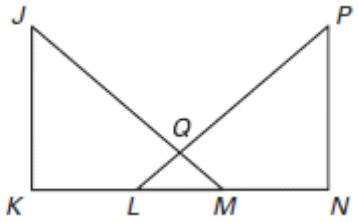
HJ = 2x
HJ = 2(5)
HJ = 10

JK = 3x
JK = 3(5)
JK = 15

Give another name for the angle in the diagram. Tell whether the angle appears to be acute, obtuse, right, or straight.

10. $\angle JKN$
∠LKJ
Right

11. $\angle KMN$
∠NMK
Straight

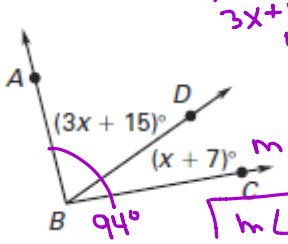


12. $\angle PQM$
∠MQP Acute

13. $\angle JML$
∠LMJ
Acute

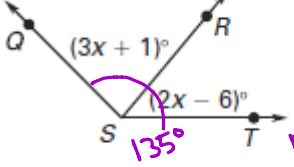
Use the given information to find the indicated angle measure.

14. Given $m\angle ABC = 94°$, find $m\angle CBD$.



mLABD + mLDBC = mLABC
3x + 15 + x + 7 = 94
4x + 22 = 94
4x = 72
x = 18
mLCBD = x + 7
= 18 + 7
mLCBD = 25°

15. Given $m\angle QST = 135°$, find $m\angle QSR$.



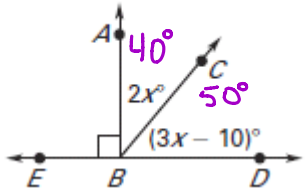
mLQSR + mLRST = mLQST
3x + 1 + 2x − 6 = 135
5x − 5 = 135
5x = 140
x = 28
mLQSR = 3x + 1
= 3(28) + 1
mLQSR = 85°

∠ 1 and ∠2 are complementary angles and ∠ 2 and ∠ 3 are supplementary angles. Given the measures of ∠ 1, find *m*∠ 2 and *m*∠ 3.

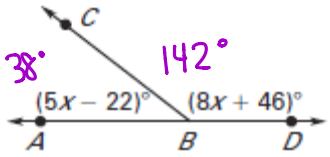
16. $m\angle 1 = 80°$ 17. $m\angle 1 = 33°$ 18. $m\angle 1 = 72°$ 19. $m\angle 1 = 7°$

Find *m*∠ *ABC* and *m*∠ *CBD*.

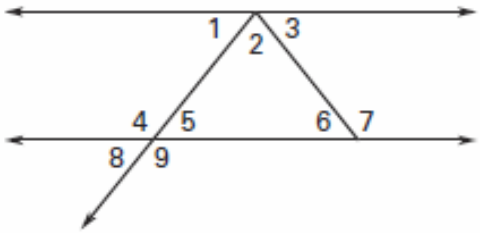
20.



21.



In Exercises 22 – 25, use the diagram. Tell whether the angles are vertical angles, a linear pair, adjacent, or neither.



22. ∠1 and ∠3 neither

23. ∠2 and ∠3 adjacent

24. ∠4 and ∠5 linear pair

25. ∠5 and ∠8 vertical

26. The measure of one angle is three times the measure of its complement. Find the measure of each angle.

$x + 3x = 90$

$4x = 90$

$x = 22.5$

The angles measure 22.5 and 67.5 degrees.

27. Two angles form a linear pair. The measure of one angle is 8 times the measure of the other angle. Find the measure of each angle.

$x + 8x = 180$

$9x = 180$

$x = 20$

The angles measure 20 degrees and 160 degrees.

Tell whether the statement is always, sometimes, or never true.

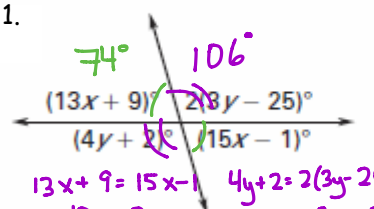
28. Two complementary angles form a linear pair.

29. The supplement of an obtuse angle is an acute angle.

30. An angle that has a supplement also has a complement.

Find the value of the variables and the measure of each angle in the diagrams.

31.



$13x + 9 = 15x - 1$

$10 = 2x$

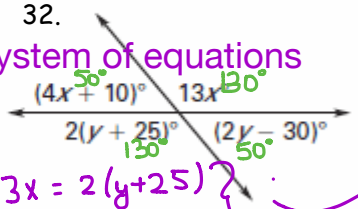
$5 = x$

$4y + 2 = 2(3y - 25)$

$2y + 1 = 3y - 25$

$26 = y$

32.



system of equations

$13x = 2(y + 25)$

$4x + 10 = 2y - 30$

$13x = 2(y + 25)$

$13x - 2y = 50$

$4x + 10 = 2y - 30$

$4x - 2y = -40$

$13x - 2y = 50$

$-1(4x - 2y = -40)$

$13x - 2y = 50$

$-4x + 2y = 40$

$9x = 90$

$x = 10$

$13x = 2(y + 25)$

$13(10) = 2(y + 25)$

$130 = 2(y + 25)$

$65 = y + 25$

$R = ah$