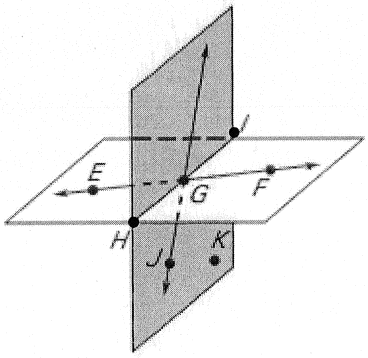
Geometry: Review 1.1-1.3

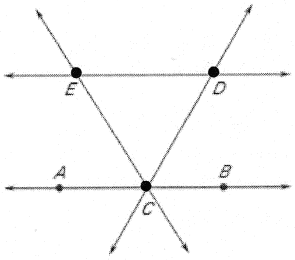
Name Key

Use the diagram to decide whether the given statement is *true* or *false*.



1. Points H, I, and G are collinear. True
2. $\overrightarrow{EG}$ and $\overrightarrow{FG}$ are opposite rays. False
3. The intersection of $\overrightarrow{EF}$ and plane JKH is $\overrightarrow{HI}$. False
4. The intersection of plane EGH and plane JGI is point G. False

Use the diagram.



5. Name 12 different rays.
   $\overrightarrow{EC}$, $\overrightarrow{ED}$, $\overrightarrow{DE}$, $\overrightarrow{DC}$, $\overrightarrow{BA}$ ($\overrightarrow{BC}$), $\overrightarrow{CB}$
   $\overrightarrow{CD}$, $\overrightarrow{CE}$, $\overrightarrow{CA}$, $\overrightarrow{AB}$ ($\overrightarrow{AC}$)
6. Name 3 lines that intersect at point C.
   $\overleftrightarrow{EC}$, $\overleftrightarrow{AB}$, $\overleftrightarrow{CD}$

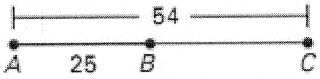
Measure the length of the segment to the nearest tenth of a centimeter.

7. E ——— F 2.2 cm

8. A ——— B 3.5 cm

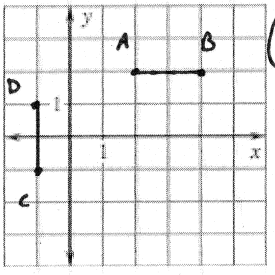
9. **Use the Segment Addition Postulate to find the indicated length.** Find BC.

   $BC = 29$ units



Plot the given points in a coordinate plane. Then determine whether the line segments named are congruent.

10. $A(2, 2)$, $B(4, 2)$, $C(-1, -1)$, $D(-1, 1)$; $\overline{AB}$ and $\overline{CD}$

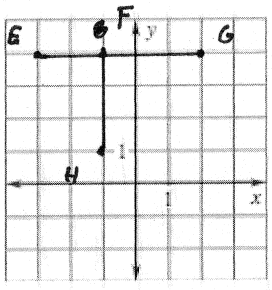


$\overline{AB} \cong \overline{CD}$

$AB = 2$

$CD = 2$

11. $E(-3, 4)$, $F(-1, 4)$, $G(2, 4)$, $H(-1, 1)$; $\overline{EG}$ and $\overline{FH}$

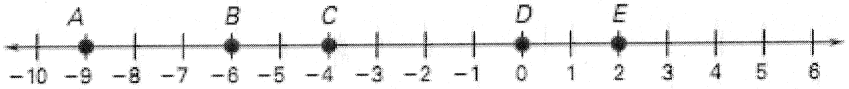


$\overline{EG} \not\cong \overline{FH}$

$EG = 5$

$FH = 3$

Use the number line to find the indicated distance.



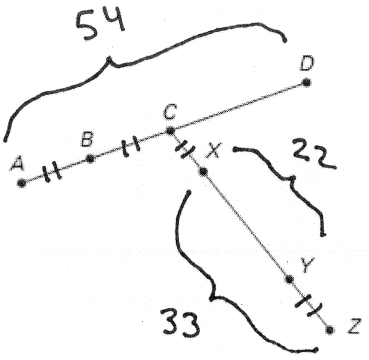
12. AB $AB = 3$ units

13. CD $CD = 4$ units

14. CE $CE = 6$ units

15. BE $BE = 8$ units

In the diagram, points *A*, *B*, *C*, and *D* are collinear, points *C*, *X*, *Y*, and *Z* are collinear, *AB* = *BC* = *CX* = *YZ*, *AD* = 54, *XY* = 22, and *XZ* = 33. Find the indicated length.



16. AB

11 units

17. CY

33 units

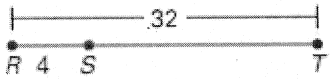
18. XC

11 units

Find the indicated length.

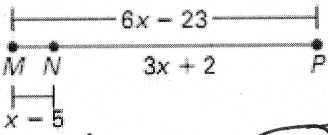
YZ = 11

19. Find *ST*.



ST = 28 units

20. Find *NP*.



x = 10

x − 5 + 3x + 2 = 6x − 23

4x − 3 = 6x − 23

−2x = −20

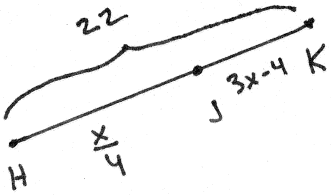
NP = 32 units

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

21. $HJ = \frac{x}{4}$

$JK = 3x - 4$

$KH = 22$



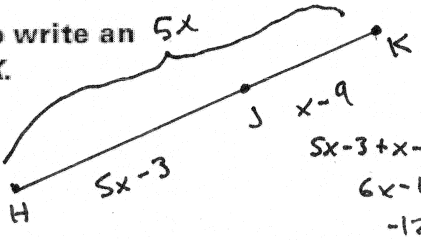
x = 8

HJ = 2, JK = 20

22. $HJ = 5x - 3$

$JK = x - 9$

$KH = 5x$



5x − 3 + x − 9 = 5x

6x − 12 = 5x

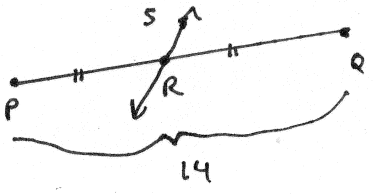
−12 = −x

x = 12

HJ = 57, JK = 3

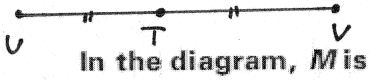
23. Line *RS* bisects $\overline{PQ}$ at point *R*. Find *RQ* if *PQ* = 14 centimeters.

RQ = 7cm



24. Point *T* bisects $\overline{UV}$. Find *UV* if $UT = 4\frac{1}{2}$ yards.

UV = 9 yards

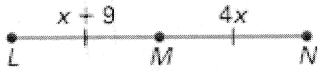


In the diagram, *M* is the midpoint of the segment. Find the indicated length.

25. Find *LN*.

x + 9 = 4x

9 = 3x



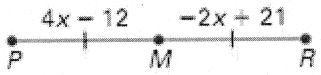
x = 3

LN = 24 units

26. Find *MR*.

4x − 12 = −2x + 21

6x = 33



x = 5.5

MR = 10 units

Find the coordinates of the midpoint of the segment with the given endpoints.

$x_m = \frac{-2 + -3}{2}$

$x_m = \frac{4+0}{2}$ $y_m = \frac{2+2}{2}$

27. *G*(−2, −8) and *H*(−3, −12)

$x_y = \frac{-8 + -12}{2}$

m(−5/2, −10)

28. *L*(4, 2) and *P*(0, 2)

m(2, 2)

use... $x_m = \frac{x_1 + x_2}{2}$ $y_m = \frac{y_1 + y_2}{2}$

Use the given endpoint *R* and midpoint *M* of $\overline{RS}$ to find the coordinates of the other endpoints.

29. $R(3, 4)$, $M(3, -2)$ — R(3,4) m(3,-2) S(x_1, y_1)

S(3, −8)

$3 = \frac{3 + x_1}{2}$ $\quad -2 = \frac{4 + y_1}{2}$

$6 = 3 + x_1$ $\quad -4 = 4 + y_1$

30. $R(11, -5)$, $M(-4, -4)$ — R (11,-5) m(-4,-4) S(x_1, y_1)

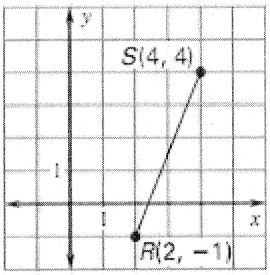
S(−19, −3)

$-4 = \frac{11 + x_1}{2}$ $\quad -4 = \frac{-5 + y_1}{2}$

$-8 = 11 + x_1$ $\quad -8 = -5 + y_1$

Find the length of the segment. Round to the nearest tenth of a unit.

31.



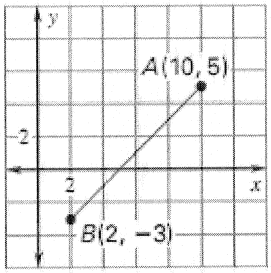
$d = \sqrt{(4-2)^2 + (4-(-1))^2}$

$= \sqrt{2^2 + 5^2}$

$= \sqrt{4 + 25}$

$\sqrt{29} \approx 5.4$ units

32.



$d = \sqrt{(10-2)^2 + (5-(-3))^2}$

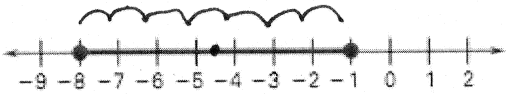
$= \sqrt{8^2 + 8^2}$

$= \sqrt{128}$

$8\sqrt{2} \approx 11.3$ units

Find the length of the segment. Then find the coordinates of the midpoint of the segment.

33.



7 units → Length = 7 units

m(−4.5, 0)

(−8, 0) treat as... (−1, 0)

The endpoints of two segments are given. Find each segment length. Tell whether the segments are congruent.

34. $\overline{RS}$: $R(5, 4)$, $S(0, 4)$ $\quad d = \sqrt{(5-0)^2 + (4-4)^2}$ $= \sqrt{25}$

$\overline{TU}$: $T(-4, -3)$, $U(-1, 1)$ $\quad d = \sqrt{(-4-(-1))^2 + (-3-1)^2}$ $= \sqrt{(-3)^2 + (-4)^2}$ $= \sqrt{25}$

$RS = 5$

$TU = 5$

$\overline{RS} \cong \overline{TU}$

35. $\overline{OP}$: $O(6, -2)$, $P(3, -2)$ $\quad d = \sqrt{(6-3)^2 + (-2-(-2))^2}$ $= \sqrt{9}$

$\overline{QR}$: $Q(5, 2)$, $R(1, 5)$ $\quad d = \sqrt{(5-1)^2 + (2-5)^2}$ $= \sqrt{16 + 9}$ $= \sqrt{25}$

$OP = 3$

$QR = 5$

$\overline{OP} \ncong \overline{QR}$

36. Draw four collinear points W, X, Y, and Z, so that $\overrightarrow{ZX}$ and $\overrightarrow{ZY}$ are the same ray and $\overline{WZ}$ and $\overline{ZX}$ are congruent.
USE A STRAIGHT EDGE!