

# Chapter 1 Test Review

1)

**20.** 7, 9, 13, 19, 27, . . .

Adding consecutive even #s  
37, 49

**21.** 1, 3, 6, 10, 15, . . .

adding consecutive #s  
21, 28

**22.** 256, 16, 4, 2, . . .

Taking square root each time

$$\sqrt{2}$$

**23.** 1.1, 1.01, 1.001, 1.0001, . . .

adding in a 0 after decimal point  
1.00001

2)

**29. Conjecture:** The sum of any two odd numbers is ?.  
even

$$1 + 1 = 2$$

$$7 + 11 = 18$$

$$1 + 3 = 4$$

$$13 + 19 = 32$$

**30. Conjecture:** The product of any two odd numbers is ?.  
odd

$$1 \times 1 = 1$$

$$7 \times 11 = 77$$

$$1 \times 3 = 3$$

$$13 \times 19 = 247$$

**31. Conjecture:** The product of a number  $(n - 1)$  and the number  $(n + 1)$  is always equal to ?.  $n^2 - 1$

$$3 \cdot 5 = 4^2 - 1$$

$$6 \cdot 8 = 7^2 - 1$$

$$4 \cdot 6 = 5^2 - 1$$

$$7 \cdot 9 = 8^2 - 1$$

3)

34. All prime numbers are odd. 2

35. The sum of two numbers is always greater than the larger number.

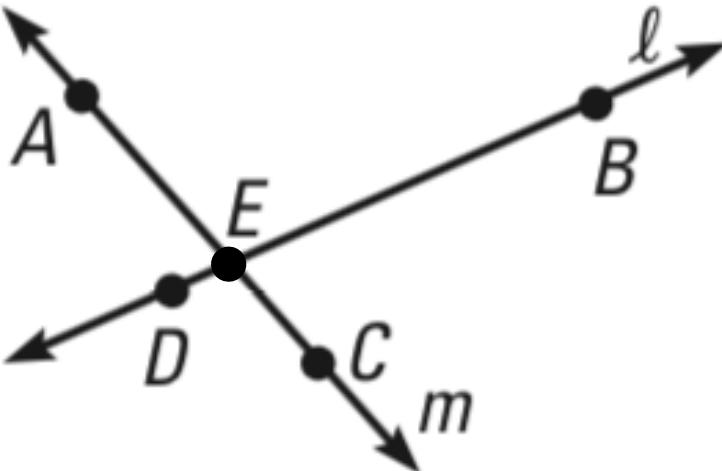
$$-2 + 3 = 1$$

36. If the product of two numbers is even, then the two numbers must be even.

$$1 \times 4 = 4$$

37. If the product of two numbers is positive, then the two numbers must both be positive.  $-2 \times -3 = 6$

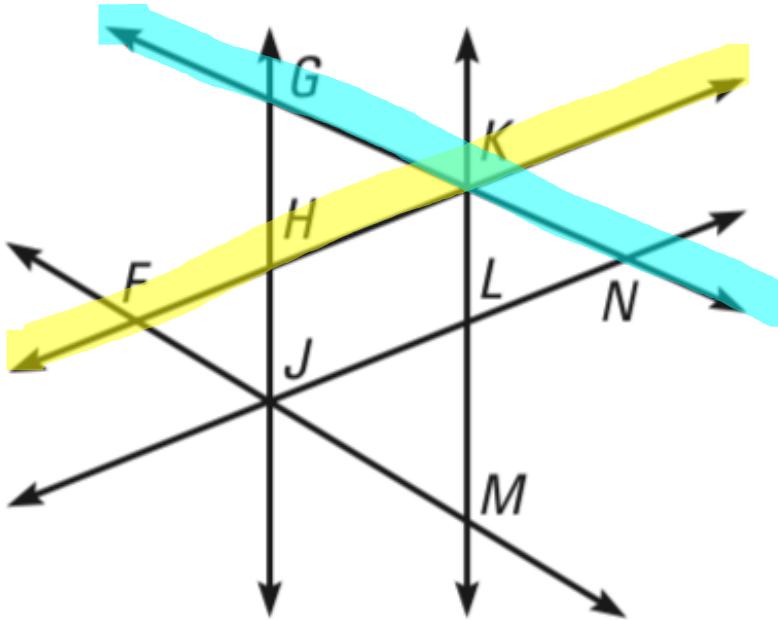
4)



9. Point  $A$  lies on line  $\ell$ . F
11. Point  $B$  lies on line  $\ell$ . T
13. Point  $C$  lies on line  $m$ . T

10.  $A$ ,  $B$ , and  $C$  are collinear. F
12.  $A$ ,  $B$ , and  $C$  are coplanar. T
14.  $D$ ,  $E$ , and  $B$  are collinear. T

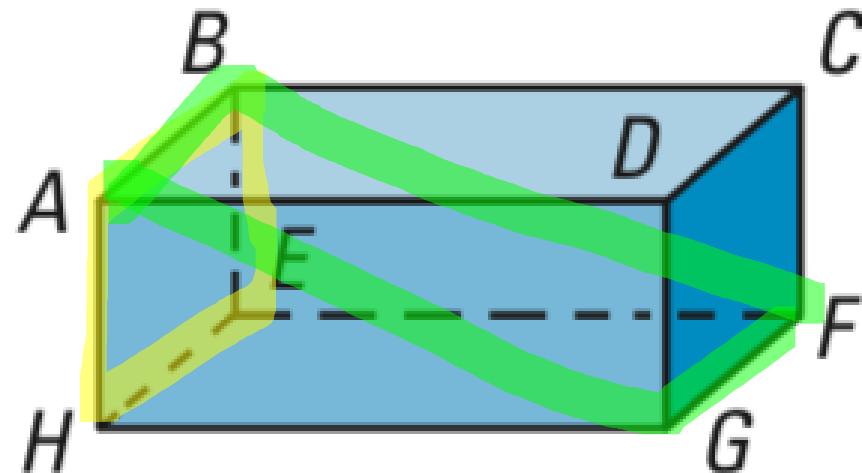
5)



17. F and H K  
19. K and L M

18. G and K N  
20. M and J F

6)

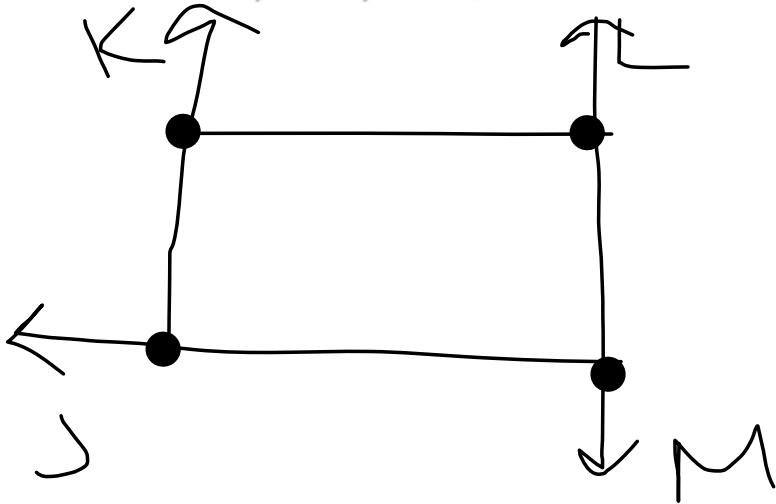


32. A, B, and H E  
34. A, B, and F G

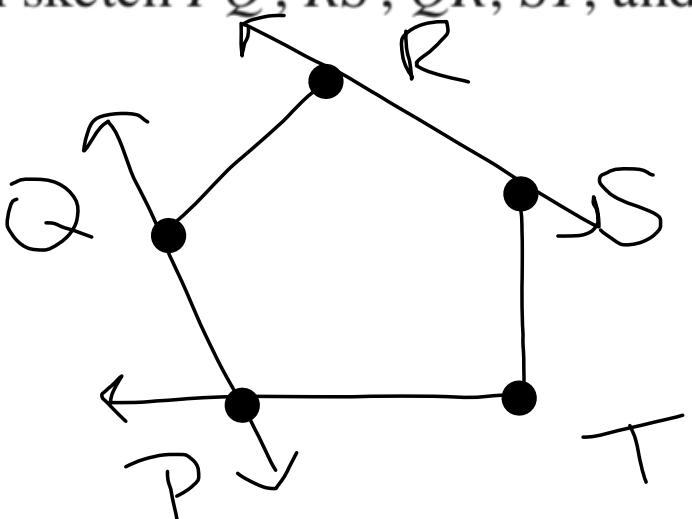
33. B, C, and F E  
35. B, C, and G H

7)

48. Draw four points  $J$ ,  $K$ ,  $L$ , and  $M$ , no three of which are collinear.  
Then sketch  $\overrightarrow{JK}$ ,  $\overrightarrow{KL}$ ,  $\overleftarrow{LM}$ , and  $\overrightarrow{MJ}$ .

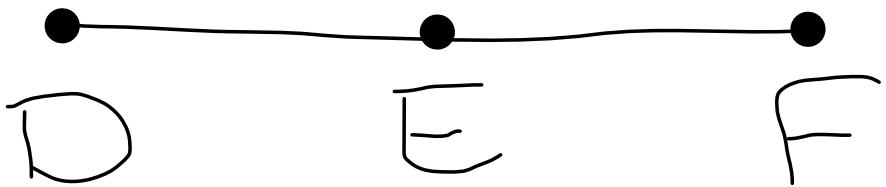


49. Draw five points  $P$ ,  $Q$ ,  $R$ ,  $S$ , and  $T$ , no three of which are collinear.  
Then sketch  $\overleftrightarrow{PQ}$ ,  $\overleftrightarrow{RS}$ ,  $\overline{QR}$ ,  $\overline{ST}$ , and  $\overrightarrow{TP}$ .



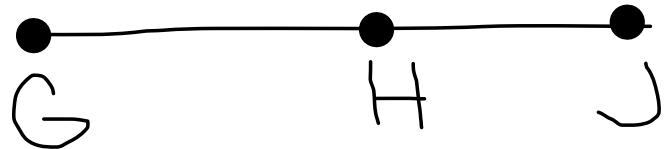
8)

19.  $E$  is between  $D$  and  $F$ .



$$\overline{DE} + \overline{EF} = \overline{DF}$$

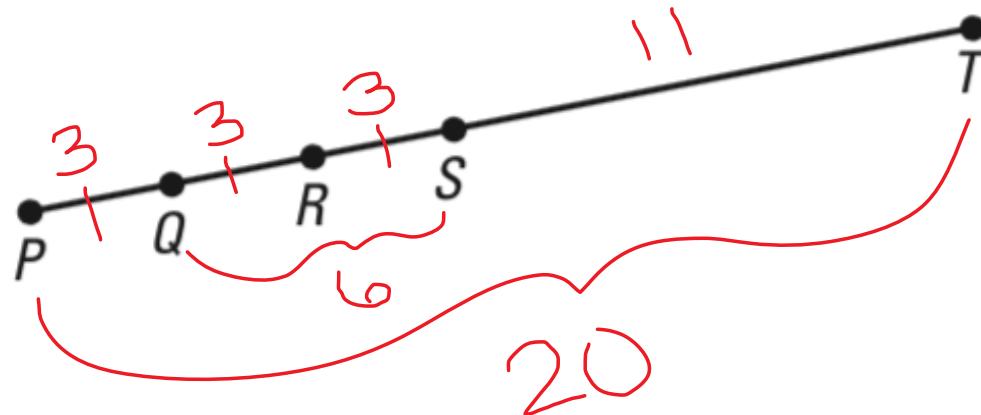
20.  $H$  is between  $G$  and  $J$ .



$$\overline{GH} + \overline{HJ} = \overline{GJ}$$

9)

$$PT = 20, QS = 6, PQ = QR = RS$$



23.  $QR$  3

24.  $RS$  3

25.  $PQ$  3

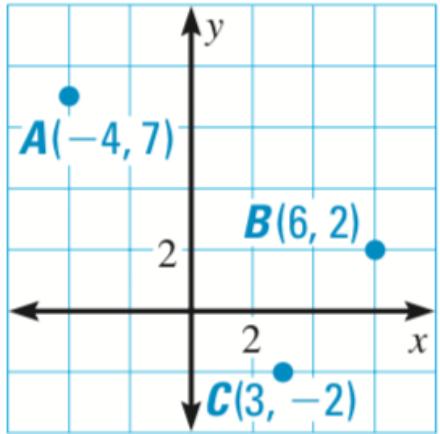
26.  $ST$  11

27.  $RP$  6

28.  $RT$  14

10)

34.



$$\sqrt{(x-x)^2 + (y-y)^2}$$

$$AB \rightarrow \sqrt{(6 - -4)^2 + (2 - 7)^2}$$

$$\rightarrow \sqrt{10^2 + (-5)^2}$$

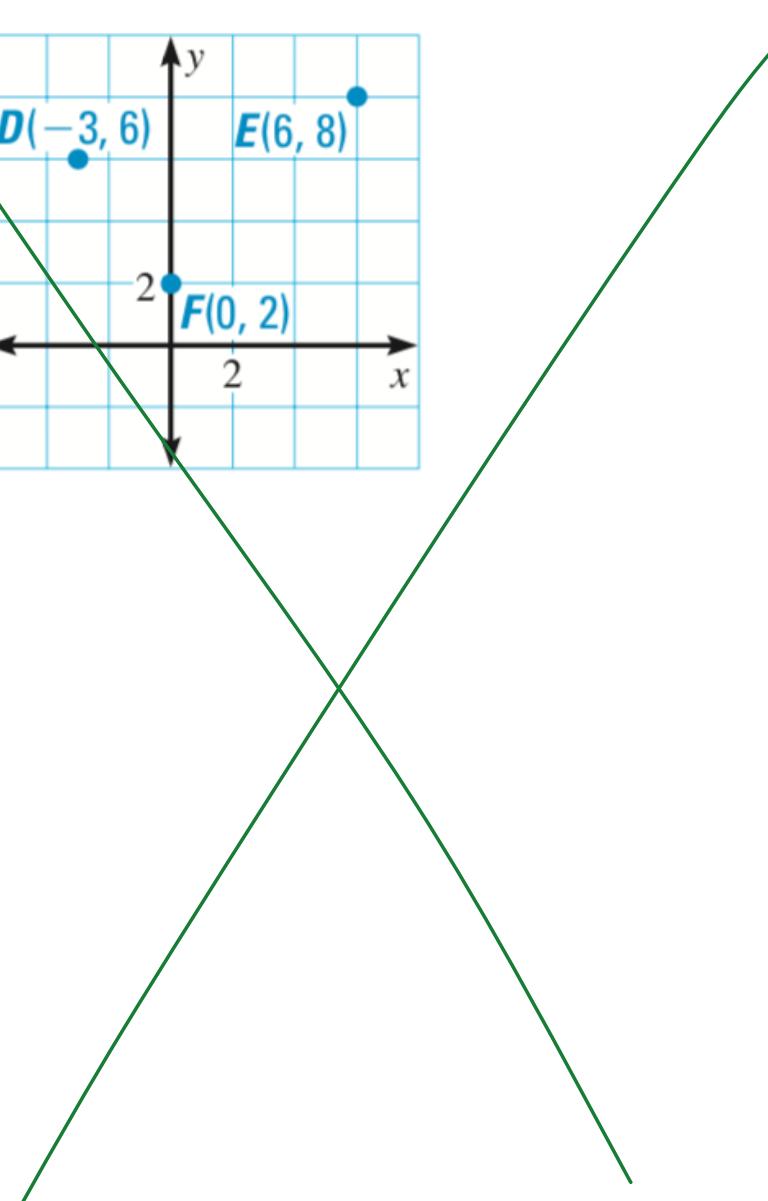
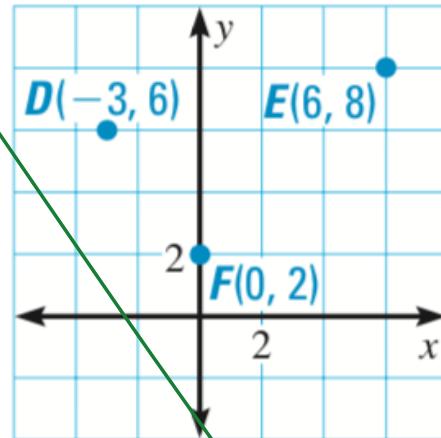
$$\rightarrow \sqrt{100 + 25} \rightarrow \sqrt{125}$$

$$BC \rightarrow \sqrt{(6 - 3)^2 + (2 - -2)^2}$$

$$\rightarrow \sqrt{3^2 + 4^2}$$

$$\rightarrow \sqrt{9 + 16} \rightarrow \sqrt{25} \rightarrow 5$$

35.



11)



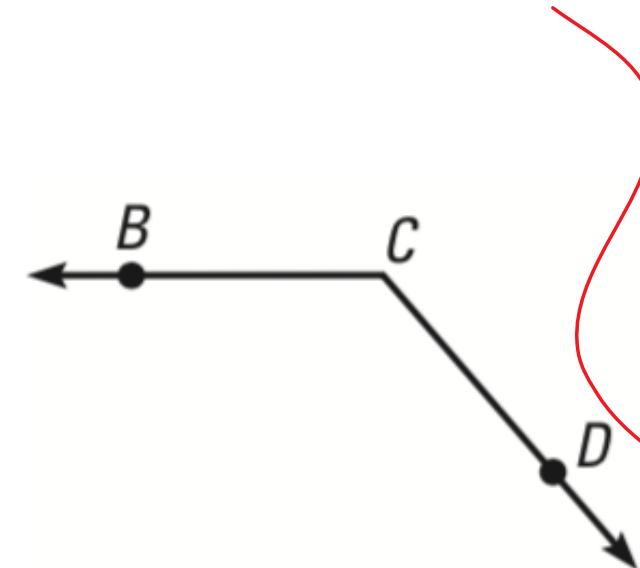
V: A

S:  $\vec{AE}$ ,  $\vec{AU}$

N: LEAU, LA,  
LUAE

20.

21.

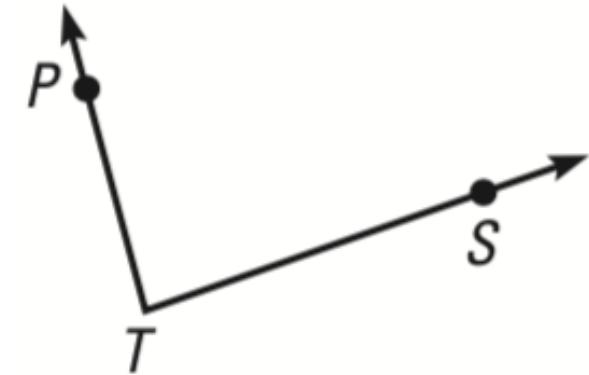


V: C

S:  $\vec{CB}$ ,  $\vec{CD}$

N: LBCD, LC,  
LDCB

22.



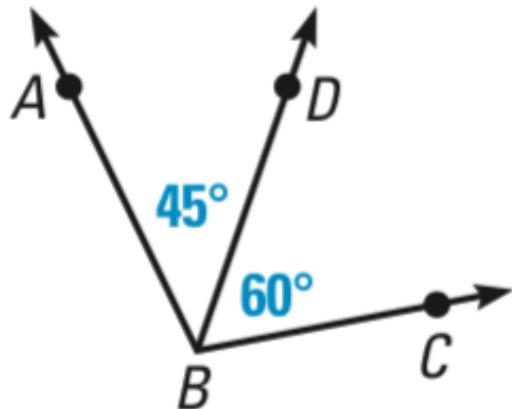
V: T

S:  $\vec{TP}$ ,  $\vec{TS}$

N: LPTS, LT,  
LSTP

12)

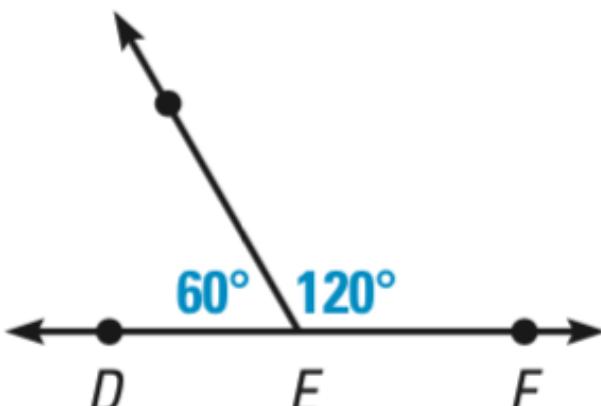
26.  $m\angle ABC = \underline{\hspace{2cm}}$



45 + 60

105°

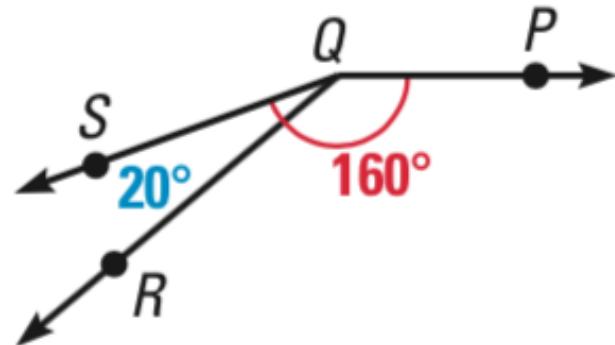
27.  $m\angle DEF = \underline{\hspace{2cm}}$



60 + 120

180°

28.  $m\angle PQR = \underline{\hspace{2cm}}$

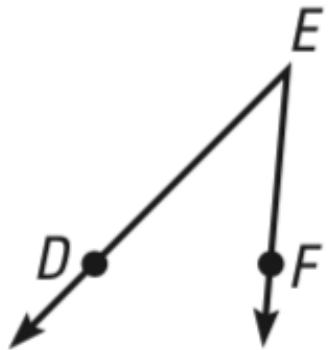


160 - 20

140°

13)

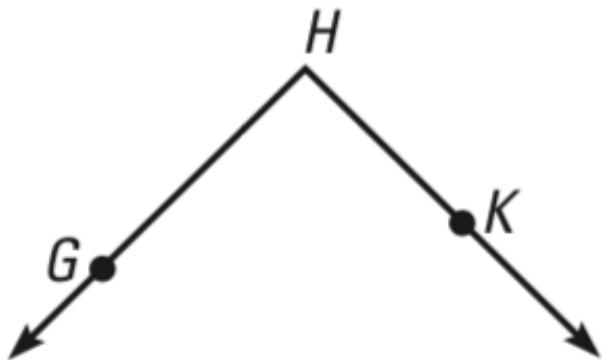
35.



acute

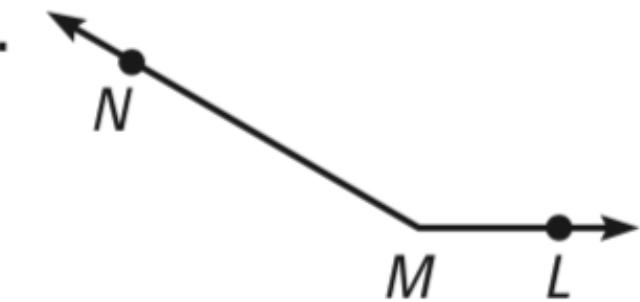
$45^\circ$

36.



right  
 $90^\circ$

37.



obtuse

$150^\circ$

14)

25.  $R(2, 6)$

$M(-1, 1)$

$$\left( \frac{x+2}{2}, \frac{y+6}{2} \right) = (-1, 1)$$

$$\cancel{\frac{x+2}{2}} = -1 \times 2 \quad \cancel{\frac{y+6}{2}} = 1 \times 2$$

$$x+2 = -2$$

$$x = -4$$

$$y+6 = 2$$

$$y = -4$$

$$\boxed{(-4, -4)}$$

26.  $T(-8, -1)$

$M(0, 3)$

$$\left( \frac{x-8}{2}, \frac{y-1}{2} \right) = (0, 3)$$

$$\cancel{\frac{x-8}{2}} = 0 \times 2 \quad \cancel{\frac{y-1}{2}} = 3 \times 2$$

$$x-8 = 0$$

$$x = 8$$

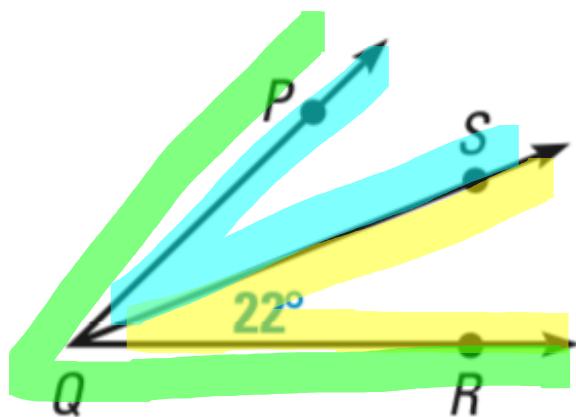
$$y-1 = 6$$

$$y = 7$$

$$\boxed{(8, 7)}$$

15)

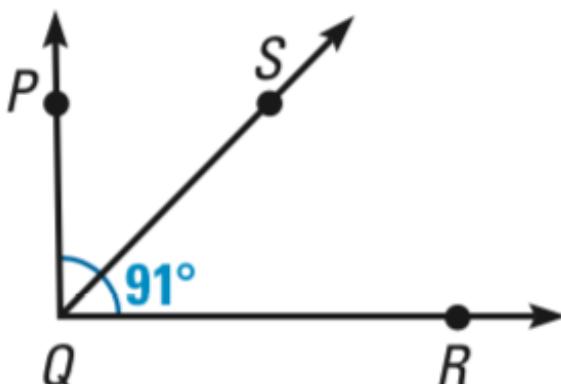
37.



$$m\angle PQS = 22^\circ$$

$$m\angle PQR = 44^\circ$$

38.

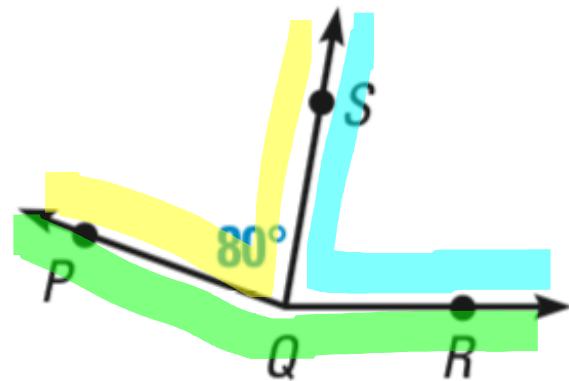


$$91/2 = 45.5$$

$$m\angle PQS = 45.5^\circ$$

$$m\angle SQR = 45.5^\circ$$

39.

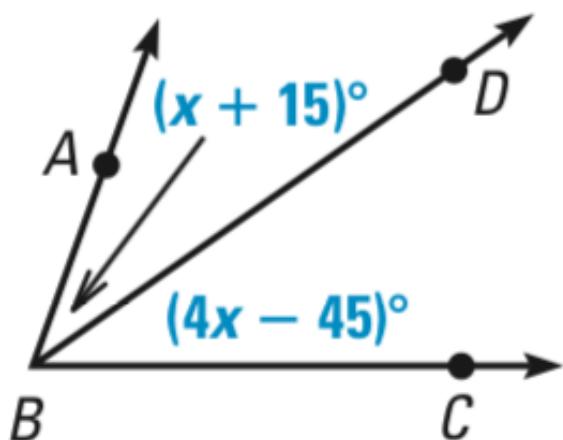


$$m\angle SQR = 80^\circ$$

$$m\angle PQR = 160^\circ$$

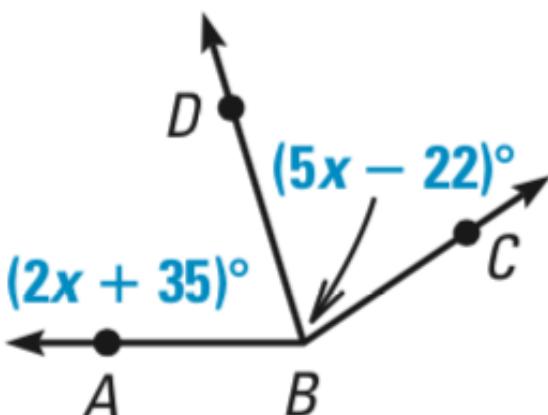
16)

44.



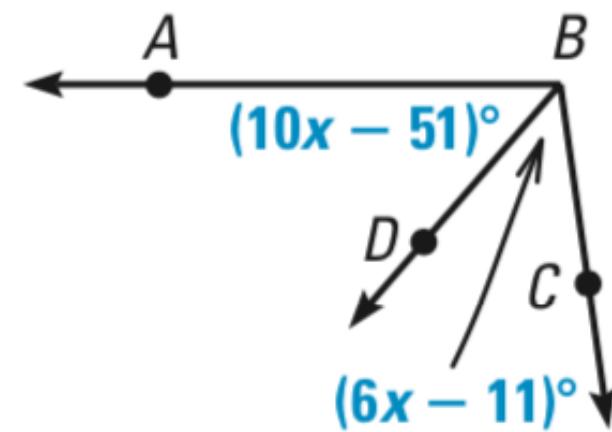
$$\begin{array}{rcl} \cancel{x} + 15 & = & 4x - 45 \\ -\cancel{x} & & -x \\ \hline 15 & = & 3x - 45 \\ +45 & & +\cancel{45} \\ \hline 60 & = & 3x \\ \frac{60}{3} & & \frac{3x}{3} \\ \hline 20 & = & x \end{array}$$

45.



$$\begin{aligned}2x + 35 &= 5x - 22 \\-2x &\quad \quad \quad -2x \\35 - 3x - 22 &= \cancel{+ 22} \\+22 &\quad \quad \quad +\cancel{22} \\57 &= 3x \\3 &\quad \quad \quad 3 \\19 &= x\end{aligned}$$

46.



$$\begin{aligned} 10x - 51 &= 6x - 11 \\ -6x \quad &\quad -51 \\ 4x &= -40 \\ +51 \quad &+51 \\ 4x &= 10 \\ \hline x &= 10 \end{aligned}$$

17)

9. Are  $\angle 5$  and  $\angle 9$  a linear pair?

Y

10. Are  $\angle 5$  and  $\angle 8$  a linear pair?

N

11. Are  $\angle 5$  and  $\angle 8$  vertical angles?

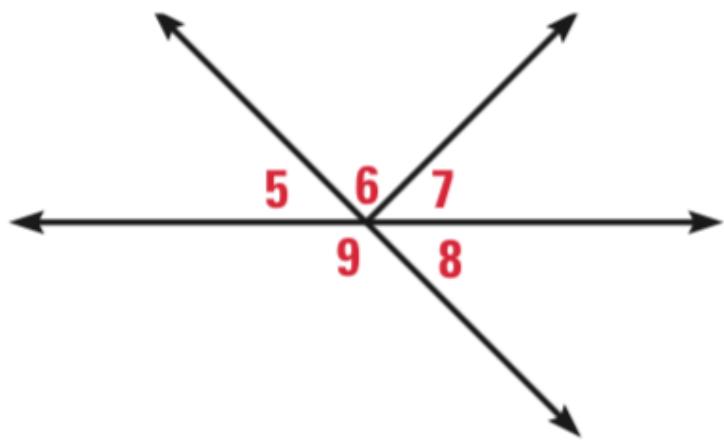
Y

12. Are  $\angle 5$  and  $\angle 7$  vertical angles?

N

13. Are  $\angle 9$  and  $\angle 6$  vertical angles?

N



18)

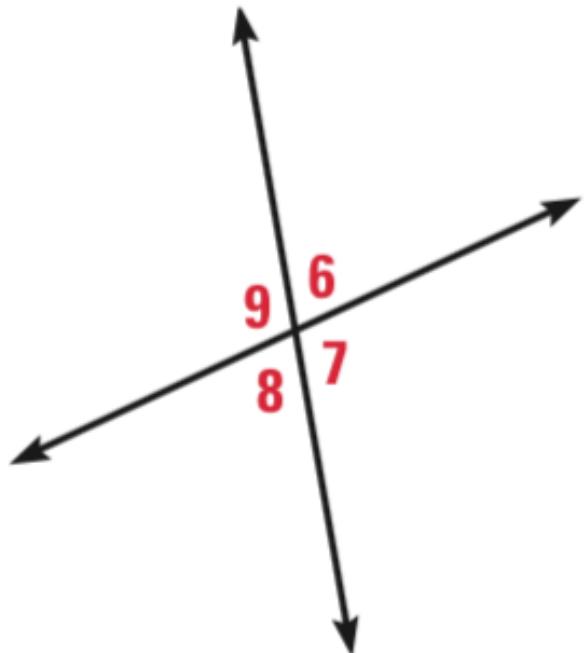
$$180 - 72$$

20. If  $m\angle 6 = 72^\circ$ , then  $m\angle 7 = \underline{\hspace{2cm}}?$  108°

21. If  $m\angle 8 = 80^\circ$ , then  $m\angle 6 = \underline{\hspace{2cm}}?$  80°

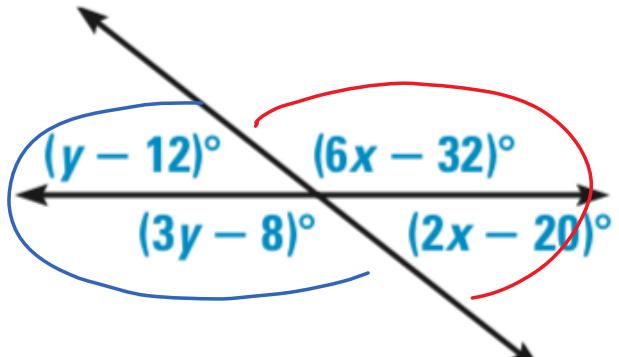
22. If  $m\angle 9 = 110^\circ$ , then  $m\angle 8 = \underline{\hspace{2cm}}?$  70°

23. If  $m\angle 9 = 123^\circ$ , then  $m\angle 7 = \underline{\hspace{2cm}}?$  123°



19)

31.



$$(6x - 32) + (2x - 20) = 180$$

$$\cancel{8x - 52} = 180$$

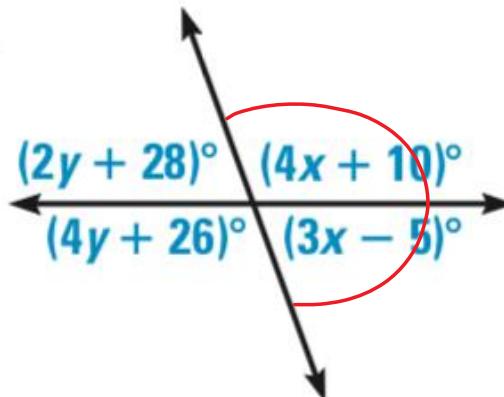
$$\begin{aligned} \cancel{8x} &= 232 \\ x &= 29 \end{aligned}$$

$$(y - 12) + (3y - 8) = 180$$

$$\cancel{4y - 20} = 180$$

$$\begin{aligned} \cancel{4y} &= 200 \\ y &= 50 \end{aligned}$$

32.



$$(4x + 10) + (3x - 5) = 180$$

$$\cancel{7x + 5} = 180$$

$$\cancel{7x} = 175$$

$$x = 25$$

$$2y + 28 + 4y + 26 = 180$$

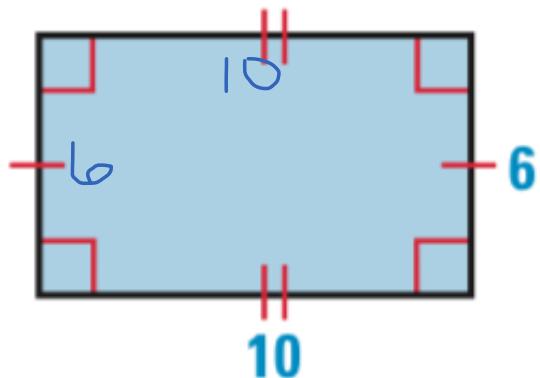
$$\cancel{6y + 54} = 180$$

$$\cancel{6y} = 126$$

$$y = 21$$

20)

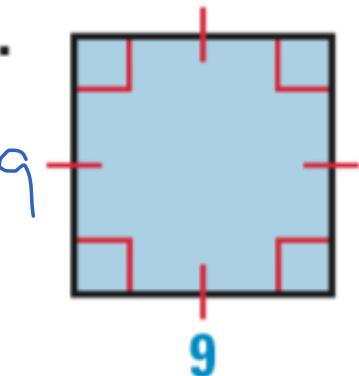
9.



$$\begin{aligned} P &\rightarrow 2(10) + 2(6) \\ &= 32 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow (10)(6) \\ &= 60 \text{ units}^2 \end{aligned}$$

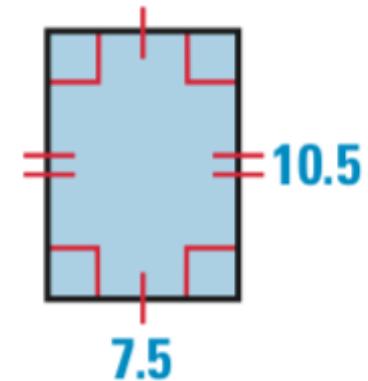
10.



$$\begin{aligned} P &\rightarrow 2(9) + 2(9) \\ &= 36 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow (9)(9) \\ &= 81 \text{ units}^2 \end{aligned}$$

14.

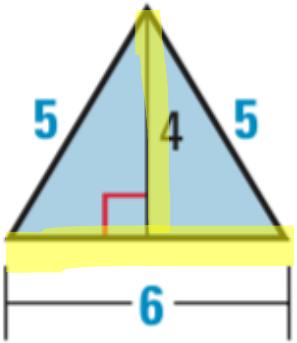


$$\begin{aligned} P &\rightarrow 2(7.5) + 2(10.5) \\ &= 36 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow (7.5)(10.5) \\ &= 78.75 \text{ units}^2 \end{aligned}$$

21)

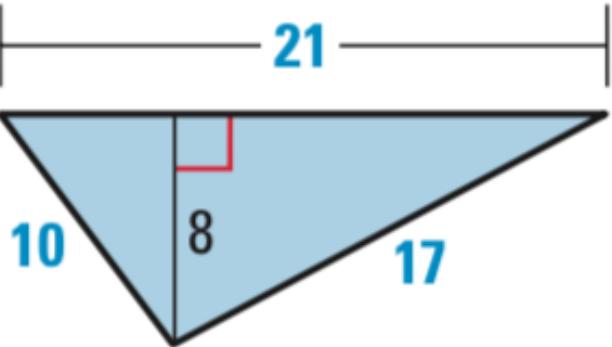
11.



$$\begin{aligned} P &\rightarrow 6 + 5 + 5 \\ &= 16 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow \frac{1}{2}(6)(4) \\ &= 12 \text{ units}^2 \end{aligned}$$

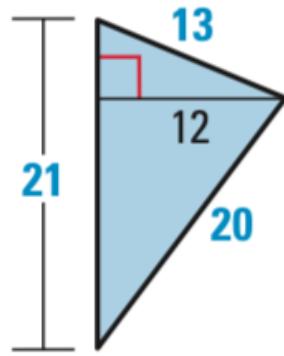
13.



$$\begin{aligned} P &\rightarrow 10 + 17 + 21 \\ &= 48 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow \frac{1}{2}(21)(8) \\ &= 144 \text{ units}^2 \end{aligned}$$

15.

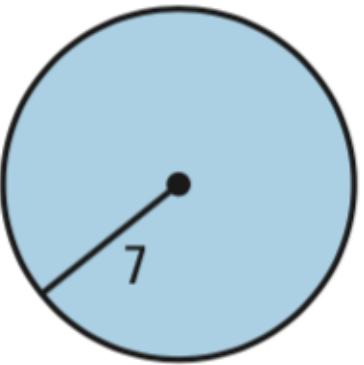


$$\begin{aligned} P &\rightarrow 21 + 20 + 13 \\ &= 54 \text{ units} \end{aligned}$$

$$\begin{aligned} A &\rightarrow \frac{1}{2}(12)(16) \\ &= 160 \text{ units}^2 \end{aligned}$$

22)

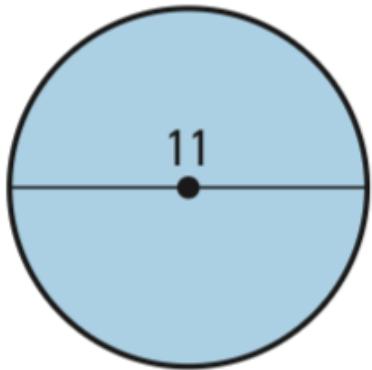
12.



$$\begin{aligned}
 C &\rightarrow 2(3.14)(7) \\
 &= 43.96 \text{ units}
 \end{aligned}$$

$$\begin{aligned}
 A &\rightarrow (3.14)(7)^2 \\
 &= 153.86 \text{ units}^2
 \end{aligned}$$

16.



$$r = 5.5$$

$$\begin{aligned}
 C &\rightarrow 2(3.14)(5.5) \\
 &= 34.54 \text{ units}
 \end{aligned}$$

$$\begin{aligned}
 A &\rightarrow (3.14)(5.5)^2 \\
 &= 94.985 \text{ units}^2
 \end{aligned}$$