Unit 1 Test Review

(handwritten top margin) ● = good   ● = study   ● = mid

1) If $DM = 35$, what is the value of r?

$r + 5$ $3r - 14$
D   G   M

(handwritten: 35)
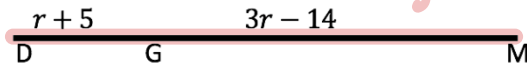
$11 + 5 + 33 - 14$
$16 + 33 - 14$
$2 + 33 = 35$

$r + 5 + 3r - 14 = 35$
$4r - 9 = 35$
$+9 \quad +9$
$\frac{4r}{4} = \frac{44}{4}$
$r = 11$

Use the following diagram to answer Q2 and 3.
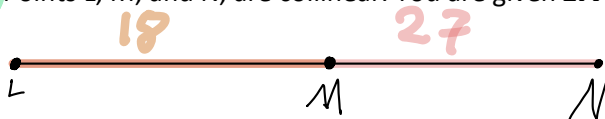*Points P, Q and S are collinear.* (same line)
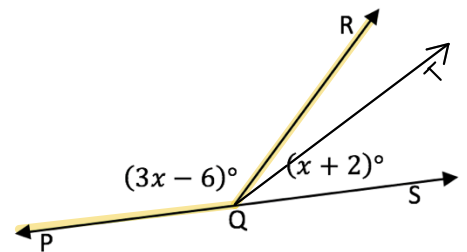
2) What is $m\angle PQR$?

$3x - 6 + x + 2 = 180$
$4x - 4 = 180$
$+4 \quad +4$

$\frac{4x}{4} = \frac{184}{4}$
$x = 46$

$3(46) - 6 = 138 - 6 = 132° = \angle PQR$

(diagram) R, $(3x-6)°$, $(x+2)°$, S, P, Q

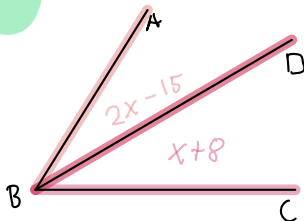**3)** If $\overrightarrow{QT}$ bisects $\angle RQS$, what will be the measure of one of the resulting angles?

$46 + 2 = 48/2 = 24°$

4) Points L, M, and N, are collinear. You are given $LM = 18$ and $LN = 27$. What is a possible value of MN?

(handwritten: 18)   (handwritten: 27)
L   M   N

$\begin{array}{r} 27 \\ -18 \\ \hline 9 \end{array}$ $MN = 9$

5) $\overrightarrow{BD}$ bisects $\angle ABC$ so that $m\angle DBC = (x + 8)°$ and $m\angle ABD = (2x - 15)°$. What is the value of x?

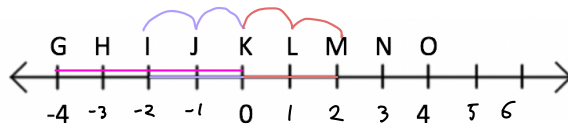(diagram) A, D, B, C, $2x-15$, $x+8$

$2x - 15 = x + 8$
$-x \qquad -x$
$x - 15 = 8$
$+15 \quad +15$
$x = 23°$

6) What is the length of FG if $F(2, 11)$ and $G(5, 16)$? Round to the nearest whole number.

$\sqrt{(5 - 2)^2 + (16 - 11)^2}$

about 6

$\sqrt{9 + 25}$ $\sqrt{34}$ ≈ 5.8

For Q7 and 8 use the following number line.

G H I J K L M N O

-4 -3 -2 -1 0 1 2 3 4 5 6

7) What is $KM + IK$?

4

8) What is the coordinate of the midpoint of $\overline{GK}$?

$I = -2$

For Q9-11 use the following conditional:

If a number is positive, then it is a whole number and an integer.

9) What is the conclusion of the conditional?

the number is whole + an integer

10) What is the hypothesis of the conditional?

a number is positive

11) State a counterexample for the conditional.

½

12) State the length of $\overline{AB}$ if $A(-3, 4)$ and $B(4,4)$

$$\sqrt{(4+3)^2 + (4-4)^2}$$

$$\sqrt{49+0} \quad \sqrt{49} = \boxed{7}$$

13) Is the converse of the conditional below true?

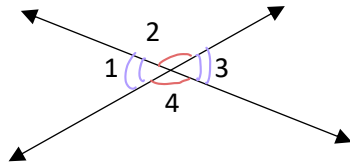*If a polygon is a triangle, then it has exactly three sides.*

If a polygon has exactly three sides, then it is a triangle,

yes

14) Make a conclusion: *If a person wants to get a car, that person must buy car insurance. Jayla wants to get a car....*

then Jayla needs to buy car insurance.
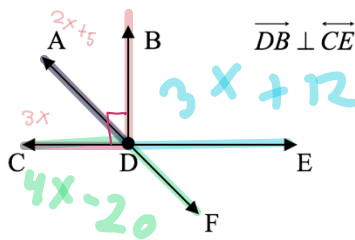
Use the diagram below for Q15 and 16

15) The statement $\angle 2 \cong \angle 4$ is justified by the ___vertical angles theorem___ .

16) If $m\angle 1 = 4x + 2$ and the $m\angle 2 = 110$, what is the value of x?

$$4x+2+110 = 180$$
$$4x+112 = 180$$
$$-112 \quad -112$$
$$\frac{4x}{4} = \frac{68}{4} \qquad x = 17$$

17)

$\overrightarrow{DB} \perp \overrightarrow{CE}$

$3x + 12$

a) If $m\angle ADB = 2x + 5$ and $m\angle CDA = 3x$, find the value of x.

$$2x+5+3x = 90$$
$$5x+5 = 90$$
$$-5 \quad -5$$
$$\frac{5x}{5} = \frac{85}{5} \qquad x = 17$$

b) If $m\angle FDC = 4x - 20$ and $m\angle EDA = 3x + 12$, find $m\angle ADC$

$$4x - 20 = 3x+12$$
$$x = 32$$
$$4(32) - 20 = 108$$
$$m\angle ADC = 72°$$

18) Find the midpoint and the length of $\overline{RS}$ if R is (3, 8) and S is (-1, -14)

$$MP = \frac{3+1}{2} , \frac{8+14}{2}$$
$$MP = (1, -3)$$
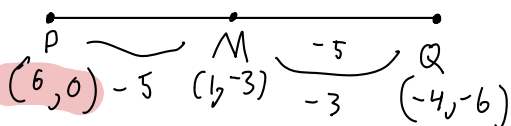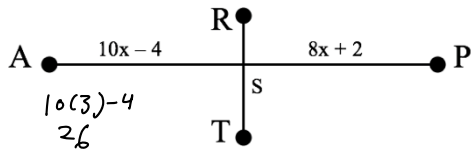
$$q = \sqrt{(3+1)^2 + (8+14)^2}$$
$$d = \sqrt{4^2 + 22^2}$$
$$d = \sqrt{16+484}$$
$$d = \sqrt{500} \qquad d = 10\sqrt{5}$$

20) M is the midpoint of $\overline{PQ}$. Find the coordinates of P if Q is (-4, -6) and M is (1, -3).

$(6, 0) \quad -5 \quad (1, -3) \quad -3 \quad (-4, -6)$

21) Find the value of x so that $\overline{TR}$ is the bisector of $\overline{AP}$ and find the length of $\overline{AP}$.

R

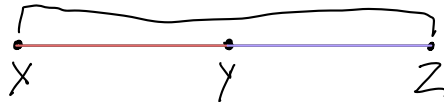A　　10x – 4　　　　　　8x + 2　　　　● P

S

$10(3)-4$
26

T

$10x - 4 = 8x + 2$
　　$+4$　　　$+4$

$10x = 8x + 6$
$-8x$　$-8x$

$AP = 2(26)$
$AP = 52$

$\dfrac{2x}{2} = \dfrac{6}{3}$

$x = 3$

22) Point Y is on $\overline{XZ}$, $XY = 5x + 2$ and $YZ = 8x - 5$ and $XZ = 166$.

(a) Find the value of x.

X　　　　　Y　　　　　Z

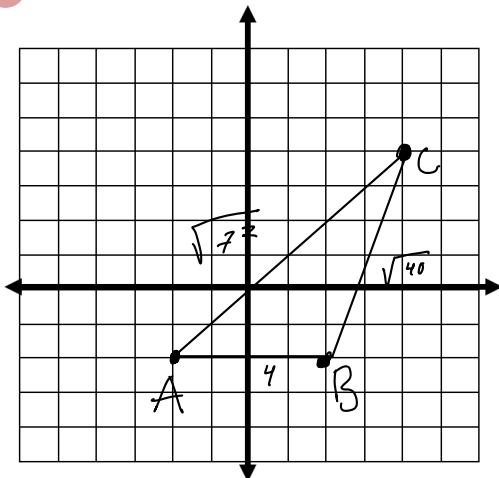$5x + 2 + 8x - 5 = 166$
$13x - 3 = 166$
　　$+3 \quad +3$
$13x = 169$
$x = 13$
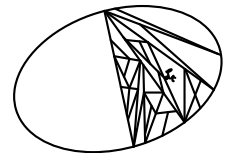
(b) Is Y the midpoint of $\overline{XZ}$? **Justify** (explain and show work) your answer.

$(xy)\ 5(13) + 2 = 67$　　　　$8(13) - 5 = 99\ (xz)$

Y is not the midpoint of $\overline{xz}$ b/c $xy \neq yz$

23) a) Plot the points A(-2, -2) B(2, -2) and C(4, 4) and connect to make ΔABC.
b) Find the length of each side of the triangle
c) Show that ΔABC is **not** a right triangle. (Use the Pythagorean theorem!)

b: use distance

$a^2 + b^2 = c^2$
$4^2 + \sqrt{40}^2 = \sqrt{72}^2$
$56 \neq 72$
not a right triangle

C

$\sqrt{72}$　　　$\sqrt{40}$

A　　4　　B

FROM TEXTBOOK: pg 64-67 skip questions 1-8, 14, skip lesson 1-2, 26, 39, 40, and 43