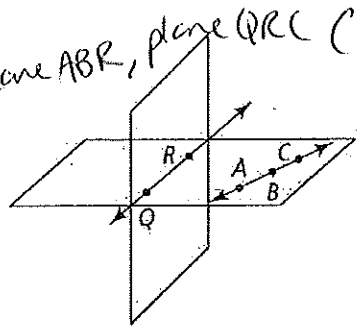
Name ANSWERS Period Date

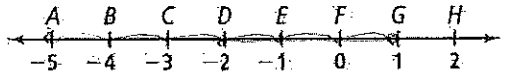
Geometry 21: Extra Practice with 1.2-1.5

Use the figure at the right for Exercises 1–4.



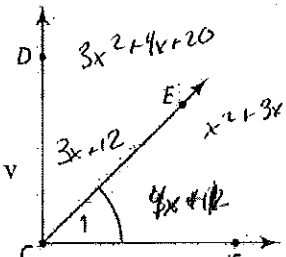
1. Give three different names for the plane. plane QRA, plane ABR, plane QRC (Not plane BAC)
2. What are two other names for $\overline{AB}$? $\overleftrightarrow{AC}$, $\overleftrightarrow{BA}$
3. Name two opposite rays in the diagram. $\overrightarrow{BC}$ & $\overrightarrow{BA}$
4. What is the intersection of the two planes? $\overleftrightarrow{QR}$

Use the figure at the right for Exercises 5–7. Name each of the following.



5. the point on $\overline{CF}$ that is 1 unit from F point E
6. two points that are 3 units from E point H and point B
7. the coordinate of the midpoint of $\overline{AG}$ point D = −2

Use the figure at the right for Exercises 8–11.

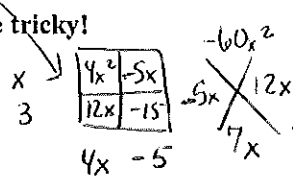


8. What are two other names for $\angle 1$? $\angle ECF$, $\angle FCE$
9. If $m\angle DCF = 90$, what is $m\angle DCE$? $90 - m\angle 1$
10. If $m\angle DCF = 90$, $m\angle DCE = 3x + 12$, and $m\angle FCE = 4x + 1$, find the v (x = 11)
11. If $m\angle DCE = 3x^2 + 4x + 20$, $m\angle ECF = x^2 + 3x + 53$, $m\angle DCF = 88$, find the value of x. (x = −3, 5/4)

$3x+12+4x+1=90$
$7x+13=90$
$7x=77$
$x=11$

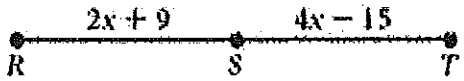
$3x^2+4x+20+x^2+3x+53=88$
$4x^2+7x+73=88$
$4x^2+7x-15=0$
$(4x-5)(x+3)=0$

Determine whether the following statements are always, sometimes, or never true. (Note: these are tricky! Think about your answers!!)



12. Through any three points, there exists exactly one line. sometimes
13. If two distinct lines intersect, their intersection is a point. always
14. A line contains at least two points. always
15. Through any three collinear points, there is exactly one plane. never (always infinite planes)

16. If $\frac{RS}{ST} = \frac{5}{7}$, find the indicated values.

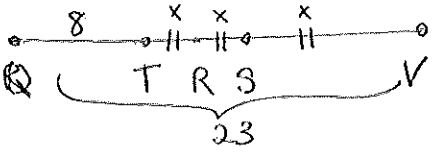


a) $x =$ 23 b) $RS =$ 55 c) $ST =$ 77 d) $RT =$ 132

$\frac{2x+9}{4x-15} = \frac{5}{7}$ $7(2x+9) = 5(4x-15)$ $14x+63 = 20x-75$ $x=23$
$138 = 6x$

Suppose S is between T and V, R is between S and T, and T is between R and Q. If $QV = 23$, $QT = 8$, and $TR = RS = SV$.

17. Make a sketch of the information provided.



$8+3x=23$
$3x=15$
$x=5$

18. Find each of the following:

a) RS = 5 b) QS = 18 c) TS = 10 d) TV = 15

Use the figure at the right for Exercises 20 and 21.

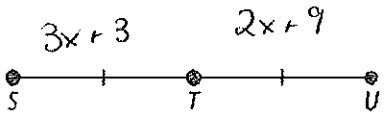
20. Given: $ST = 3x + 3$ and $TU = 2x + 9$.

a. What is the value of ST? (21)

b. What is the value of TU? (21)

$3x+3=2x+9$

$x = 6$



21. Given: $ST = x + 3$ and $TU = 4x - 6$.

a. What is the value of ST? (12)

b. What is the value of SU? (24)

$x+3=4x-6$

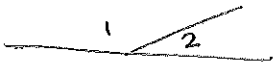
$9=3x$

$x=3$

22. $\angle 1$ and $\angle 2$ form a straight angle. If $m\angle 1 = 5x^2 + 112$ and $m\angle 2 = 4x + 56$, find $m\angle 1$ and $m\angle 2$. (132°, 48°, 119.2°, 60.8°)

$(x+2)(5x-6)=0$

$x=-2,\ 6/5$



$5x^2+112+4x+56=180$

$5x^2+4x+168=180$

$5x^2+4x-12=0$

×	$5x^2$	$-6x$
2	$10x$	-12

$5x \quad -6$

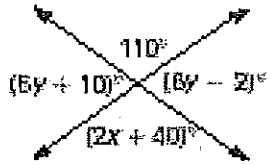
$-60x^2$

$10x \quad -6x$

$4x$

Find the value(s) of the variable(s).

13.



$2x+40=110$

$2x=70$

$x=35°$

$5y+10=6y-2$

$12=y$

14.

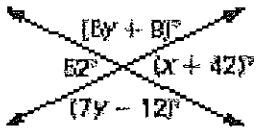
$y=145°$

$x=.5x+17.5$

$.5x=17.5$

$x=35°$

15.



$6y+8=7y-12$

$20=y$

$52=x+42$

$x=10$

In Exercises 19 and 20, assume that $\angle A$ is supplementary to $\angle B$ and complementary to $\angle C$. Determine $m\angle A$, $m\angle B$, and $m\angle C$.

19. $m\angle A = (x + 10)°$, $m\angle B = (12x + 1)°$, $m\angle C = (5x + 2)°$

$x+10+12x+1=180$ (or) $x+10+5x+2=90$

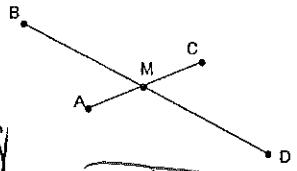
$x=13$ $\qquad$ $x=13$

20. $m\angle A = (2.5x + 17)°$, $m\angle B = (21x - 25)°$, $m\angle C = (8x - 11)°$

$2.5x+17+21x-25=180$ $\quad x=8$ $\quad$ or $\quad 2.5x+17+8x-11=90$ $\quad x=8$

In the figure below (not drawn to scale), $\overline{AC}$ and $\overline{BD}$ bisect each other. For the following problems, find all possible values for x and find the measure(s) of each segment.

1. $BM = 3x^2 - 7x + 10$ and $MD = x^2 + 6x - 10$

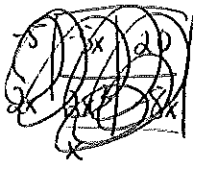


$3x^2-7x+10=x^2+6x-10$

$2x^2-13x+20=0$

$(x-4)(2x-5)=0$

$x=4,\ 5/2$



x	$2x^2$	$-5x$
-4	$-8x$	20

$2x \quad -5$

$BM = MD = 30$

or $BM = MD = 11.25$

2. $MC = 2(x - 3)$ and $AC = 3(x + 5)$

$2(2x-6)=3x+15$

$4x-12=3x+15$

$x=27$

$MC = AC = 96$

3. In the figure below (not drawn to scale), $\overline{GI}$ bisects $\angle HGF$, $m\angle FGI = (5x^2 + 9x - 20)°$, and $m\angle HGI = (4x^2 + 5x + 1)°$.

$4x^2+5x+1=5x^2+9x-20$

$0=x^2+4x-21$

$0=(x-3)(x+7)$

$x=3,\ -7$