Geometry
Mid-Term Review

SECTION 1
Answer the following with Always, Sometimes, or Never.

1. Two non-parallel planes intersect. Always

2. Adjacent angles are supplementary angles. Sometimes

3. Two vertical angles are supplements. Sometimes

4. Two coplanar lines intersect. Sometimes

5. Skew lines are coplanar. Never

6. If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, the triangles are congruent. Always

7. If one angle in a triangle is $60°$, the triangle is equilateral. Sometimes

8. Opposite angles of a parallelogram are congruent. Always

9. Diagonals of a rhombus are congruent. Sometimes

10. If a conditional is true, then the contrapositive is true. Sometimes

SECTION 2
Write the corresponding letter to the correct answer in the space on the answer sheet.

1. A line is determined by:

a) three points (b) two points c) four points d) a plane

2. Points A and B are collinear, how many planes contain A and B?

a) none b) one (c) an infinite number d) two

3. A statement that has a converse is a:

a) definition b) theorem c) conditional (d) all of the above

4. A biconditional is:

a) true b) false (c) sometimes true d) none of the above

1

5. Find the angle that is 18 more than its complement.

a) 36 b) 81 c) 54 d) 99

$x = 18 + 90 - x$

$2x = 108$

$x = 54$

6. The complement of an angle is 40 more than its vertical angle, find the angle.

a) 70 b) 25 c) 110 d) 65

$90 - x = 40 + x$

$50 = 2x$

$x = 25$

7. The sum of the measures of the interior angles of a decagon is:

a) 360 b) 144 c) 1440 d) 1800

$180(n-2)$

$180(10-2)$

1440

8. Each of the exterior angles of a regular pentagon is:

a) 180 b) 108 c) 360 d) 72

360 - sum of ext

$\frac{360}{5} =$

9. Non-intersecting, coplanar lines are called:

a) parallel lines b) transversals c) intersecting lines d) skew lines

10. Alternate exterior angles are:

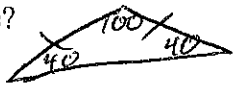
a) 90 b) congruent c) supplements d) complements

11. To prove acute triangles congruent, you must have:

a) two angles b) two sides c) three sides d) three pairs of congruent parts

12. If an angle of an isosceles triangle is 100, what is a base angle?

a) 100 b) 80 c) 40 d) 30



13. HL is used on:

a) right triangles b) acute triangles c) obtuse triangles d) any triangles

14. In acute triangles, AAS is a shortcut for

a) SAS b) AAA c) ASA d) HL

15. If a trapezoid has bases of 10 and 14, what is the length of the median?

→ avg of bases

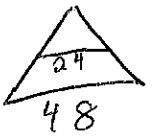
a) 12 b) 14 c) 16 d) 28

16. If the diagonals of a quadrilateral are congruent, which figure do we have?

a) rectangle b) rhombus c) trapezoid d) parallelogram

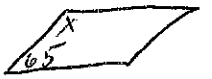
17. If the segment joining the midpoints of two sides of an equilateral triangle has length 24, what is the length of the third side?

a) 24 b) 12 c) 36 d) 48



18. If an angle in a parallelogram is 65, what is the measure of a consecutive angle of the parallelogram?

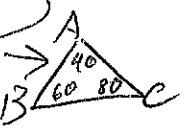
a) 65 b) 115 c) 25 d) 180



$65+x=180$

19. If a triangle has sides of 21, 30, x, then:

a) $21<x<30$ b) $0<x<9$ c) $21<x<51$ d) $9<x<51$



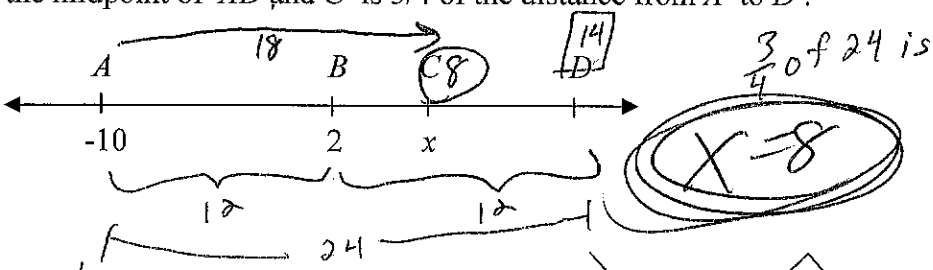
20. In ΔABC, $\angle A = 40, \angle B = 60$, what is the longest side?

a) $\overline{AB}$ b) $\overline{BC}$ c) $\overline{AC}$ d) can't be determined

SECTION 3

Find the values of the variables and place the answers on the answer sheet.

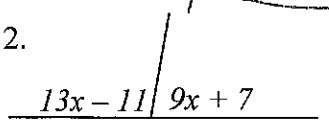
1. B is the midpoint of AD and C is 3/4 of the distance from A to D.



$\frac{3}{4}$ of 24 is 18

$x = 8$

2.



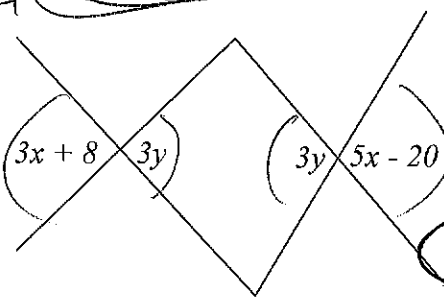
$13x-11+9x+7=180$

$22x-4=180$

$22x=184$

$x = 8.4$

3.

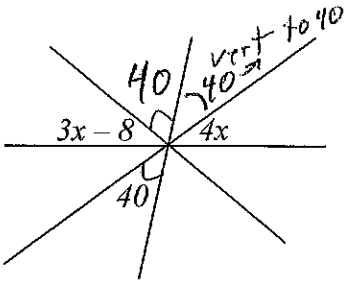


$3x+8=5x-20$

$28=2x$

$x=14$

4.



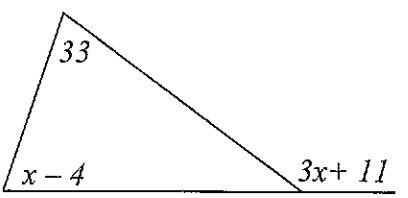
$3x-8+40+40+4x=180$

$7x+72=180$

$7x=108$

$x=15.4$

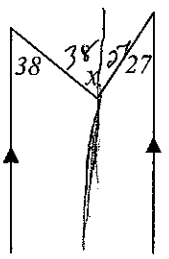
5.



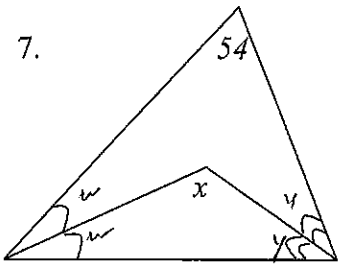
$3x+11=33+x-4$

$2x=18$

$x=9$

6. 

$x = 65$

7. 

$2w+2y+54=180$

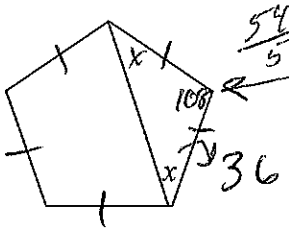
$2w+2y=126$

$w+y=63$

$x+w+y=180$

$x+63=180$

$x=117$

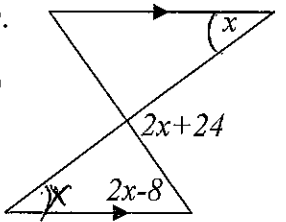
8. 

regular pentagon

$\frac{540}{5}=108$

$y = 36$

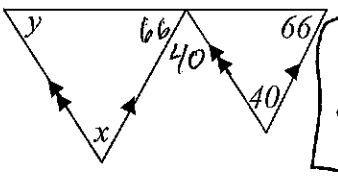
$x = 36$

9. 

$2x+24=2x-8+x$

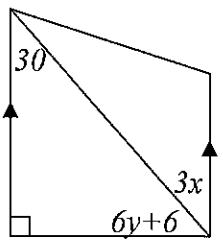
$32=x$

$x=32$

10. 

$x=40$

$y=74$

11. 

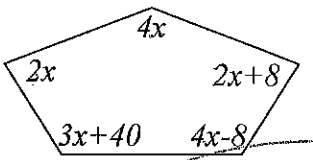
$3x=30$

$x=10$

$6y+6+30=90$

$6y=54$

$y=9$

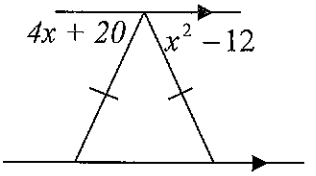
12. 

$5m=540^\circ$

$15x+40=540$

$15x=500$

$x = 33\frac{1}{3}$

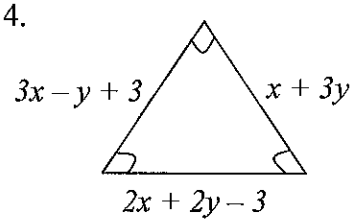
13. 

$x^2-12=4x+20$

$x^2-4x-32=0$

$(x-8)(x+4)=0$

$x=8,\ -4$

14. 

$3x-y+3=x+3y \rightarrow 2x-4y=-3$

$2x+2y-3=x+3y \rightarrow x-y=3$

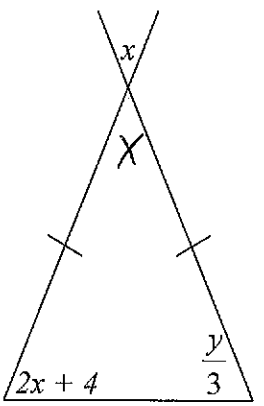
$2x-4y=-3$

$-2x+2y=-6$

$-2y=-9$

$y = 4\frac{1}{2}$

$x = 7\frac{1}{2}$

15. 

$2x+4=\frac{y}{3} \rightarrow 6x-y=-12$

$2x+4+x+\frac{y}{3}=180 \rightarrow 6x+y=528$

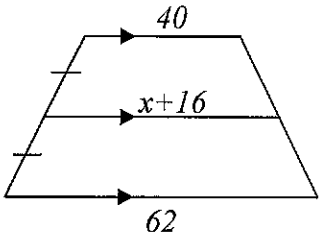
$12x=516$

$x=43$

$258-y=12$

$y=246$

16.

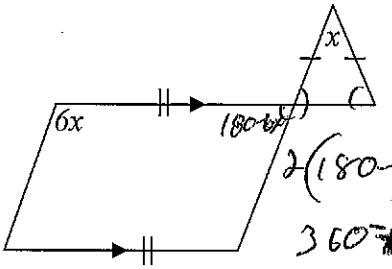


$x+16 = \frac{40+62}{2}$

$x+16 = 51$

$x = 35$

17.



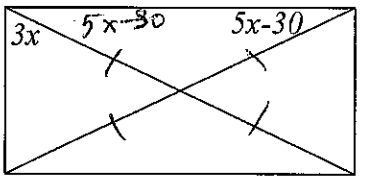
$2(180-6x)+x=180$

$360-12x+x=180$

$-11x=-180$

$x=16.4$

18.



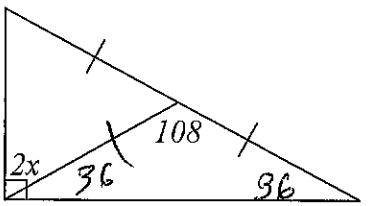
rectangle

$5x-30+3x=90$

$8x=120$

$x=15$

19.

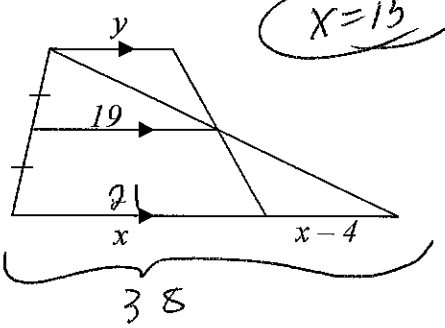


$2x+36=90$

$2x=54$

$x=27$

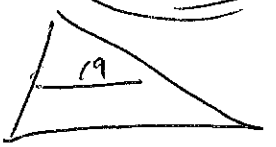
20.

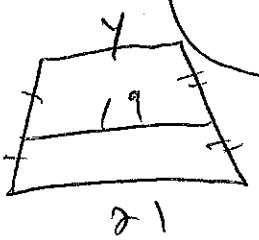


$2x-4=38$

$2x=42$

$x=21$





$y=17$