Geometry Part I Exam Review
Can you apply what you know?

Name __Master E&__ Block____
Date of A Day Exam: Wednesday, January 21
Date of B Day Exam: Thursday, January 22

1-3: Use the given figure to answer each question.

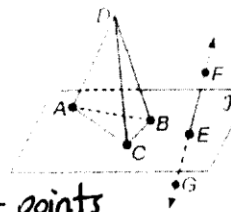1. What is the intersection of plane P and Plane ACD?

   $\overleftrightarrow{AC}$

2. Name 3 collinear points.

   F, E, & G

3. How many planes can be drawn through points A, B, and C? **1**

   b/c they are 3 noncollinear points

4-6: Use the given segment to answer each question.

W +8 X +8 T   Y
-18   -10   -2   22

4. WY = __40__.

   $|22-(-18)| = |22+18| = |40|$

5. Find the midpoint of $\overline{WY}$. $\dfrac{-18+22}{2} = \dfrac{4}{2} = ②$

6. If X is the midpoint of $\overline{WT}$, find the coordinate of T.

   $\dfrac{-18+X}{2} = -10$ $-18+X = -20$ $(X=-2)$

7-12: Use the given points to answer each. $A(-2, 5), B(-3, 8)$

7. Find the midpoint of $\overline{AB}$. $\left(\dfrac{-2+-3}{2}, \dfrac{5+8}{2}\right) = \left(\dfrac{-5}{2}, \dfrac{13}{2}\right)$

8. Find the length of $\overline{AB}$.

   $\sqrt{(-3-(-2))^2 + (8-5)^2} = \sqrt{(-1)^2+(3)^2} = \sqrt{10}$

9. Find the slope of $\overline{AB}$. $\dfrac{8-5}{-3-(-2)} = \dfrac{3}{-1} = (-3)$

10. Find the slope of a line perpendicular to $\overline{AB}$. $\dfrac{1}{3}$

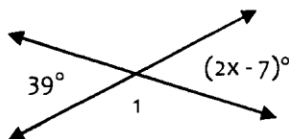11. Find the slope of a line parallel to $\overline{AB}$. (-3)

12. Write the equation line going through A and B.

    $y - 5 = -3(x+2)$ $(y = -3x - 1)$
    $y - 5 = -3x - 6$
    $+5 \qquad +5$

13. Find x and m∠1.

    $2x-7 = 39$ $m∠1 = 180$
    $2x = 46$ $\quad -39$
    $(X=23)$ $(m∠1 = 141)$

    39°   (2x - 7)°   1

14. In the figure, if ∠1 and ∠3 are supplementary, then ∠1 and __5__ are supplementary.

    since ∠3 ≅ ∠5!

    7
    5 4   2
    6 3   1
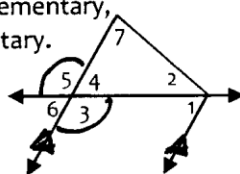
15-16: Given: AM = 3x + 2, MB = 5x – 1, and AB = 25

A 3x+2 M   5x-1   B
          25
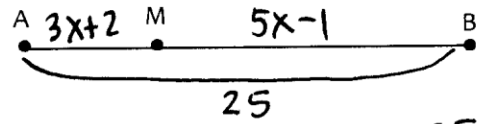
15. Find x and MB. $3x+2+5x-1 = 25$ MB =
    $8x+1 = 25$ $5(3)-1$
    $8x = 24$ $15-1$
    $(X=3)$ $(MB=14)$

16. AM + __MB__ = __AB__ is an example of the segment addition property

17: Given: E is the midpoint of $\overline{HG}$
    EH = 5x – 24 and EG = 2x – 3

    R   H   T
         E
    G
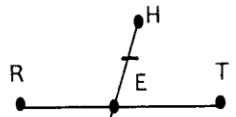
17. Find x and EG.

    $5x-24 = 2x-3$ EG = $2(7)-3$
    $3x-24 = -3$ $14-3$
    $3x = 21$ $(EG = 11)$
    $(x=7)$

18. In the figure, x = __70__.

    $x+30+80 = 180$
    $x+110 = 180$
    $(X = 70)$

    80°
    30
    x°   30°
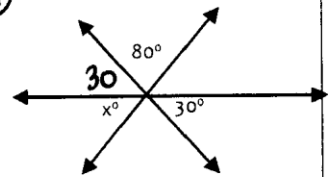
19. The complement of an angle is five times as large as the angle. Find the degree measure of the two angles.

    $5x + x = 90$ 2 ∡s
    $6x = 90$ $(15° \& 75°)$
    $(X = 15)$

    5x
    x

20-24: Given: p: Fido is smart; q: He can jump
Write a conditional statement for each symbolic statement.

20. p→~q If Fido is smart, then he can't jump.

21. q→~p If Fido can jump, then he is not smart.

22. q→p If Fido can jump, then he is smart.

23. ~p→~q If Fido is not smart, then he can't jump.

24. ~q→~p If Fido can't jump, then he isn't smart.

25-29: Given: If m ⊥ n, then ∠3 ≅ ∠4
Write each statement.

25. The hypothesis   m ⊥ n

26. The conclusion   ∠3 ≅ ∠4

27. The inverse   If m ⊥̸ n, then ∠3 ≇ ∠4.

28. The converse   If ∠3 ≅ ∠4, then m ⊥ n.

29. The contrapositive   If ∠3 ≇ ∠4, then m ⊥̸ n.

30. If ∠1 ≅ ∠2, m∠1 = 6x −30 and
m∠URS = 5x + 24, then x = __12__.

$6x-30+6x-30 = 5x+24$
$12x-60 = 5x+24$
$7x = 84 \Rightarrow \boxed{x=12}$
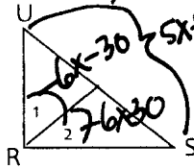
31. In #30, if m∠URS = 90, then ∠1 and ∠2
are __Complementary__ angles.

32-34: Draw a Venn Diagram for each question below.

32. All dogs love bones
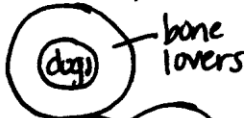
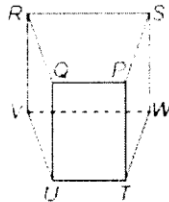**33.** Most teachers are caring.

34. No students are seniors.
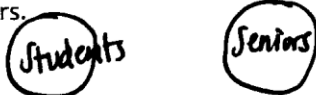
35-37: Use the figure to answer each question.

35. Name a plane parallel to plane QPS.
plane UTW

36. Name a segment parallel to $\overline{PT}$
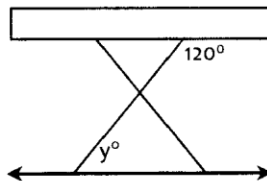$\overline{QU}, \overline{RV}, \& \overline{SW}$

37. Name a segment skew to $\overline{PT}$
$\overline{RS}, \overline{VW}, \overline{RQ}, \& \overline{VU}$

38. What does y have to be for
the picnic tabletop to be
parallel to the ground?
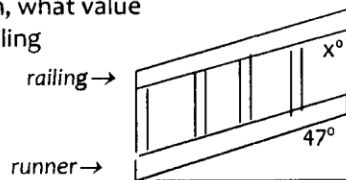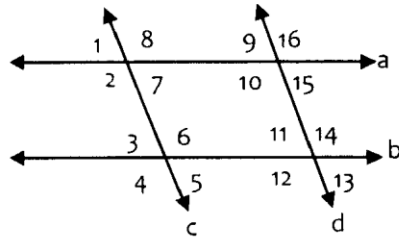$120 + y = 180$
$\boxed{y = 60°}$

39. For the staircase shown, what value
of x would make the railing
parallel to the runner?   railing →
$\boxed{47°}$
runner →
x°
47°

40-44: Use the diagram to answer each.

40. If m∠1 = 75°, which angle(s) must measure 105°
for line a to be parallel to line b? ∠4, ∠6, ∠8, ∠2

41. ∠8 and ∠4 are called __alternate exterior__ angles.

42. If a ‖ b and m∠9 = 52°, then m∠14 = __128°__.

43. If c ‖ d, m∠6 = 3x + 5 and m∠11 = 7x + 3, then x = __17.2__

$3x+5 + 7x+3 = 180$
$10x+8 = 180$ $\boxed{x=17.2}$ (consecutive interiors ∠s)
$10x = 172$

44. If m∠3 = 80°, then m∠1 = __80°__. (corr. ∠s)

45. Given: $y = \frac{2}{3}x - 7$. Write an equation that is: y-int can be an # + or −

A. Parallel to it: $y = \frac{2}{3}x$ ★
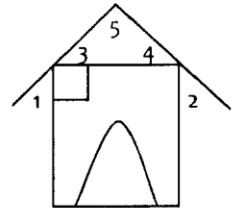
B. Perpendicular to it: $y = \frac{-3}{2}x$ ★

46. Given: m∠1 = 42°, find the following:
m∠2 = __42°__.
m∠3 = __48°__.
m∠4 = __48°__.
m∠5 = __84°__. 180 − 2(48)

47. For the fence gate shown,
what value of x would make
the gate perpendicular
to the ground? $\boxed{50°}$
80°
40°
x°   x°
$180 = 2x + 80$
$100 = 2x$
$\boxed{50 = x}$
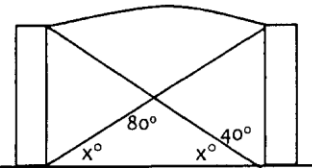
48. Find x.
$53 + 27 = \boxed{80°}$
27°
x°
53°
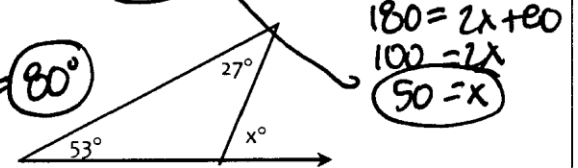
49. List the angles in order from
SMALLEST to LARGEST.
∠C, ∠A, ∠B
8   9
B
11
A   C
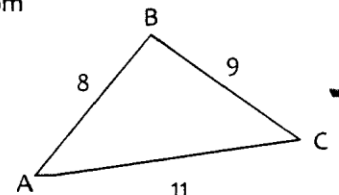
50. If two sides of a triangle have lengths 7 and 13, what is the range of the third side.

$6 < x < 20$

51. In an isosceles right triangle, the measure of each acute angle is $45°$.

52. If $m\angle 3 = 65$, then $m\angle 1$ is $115°$.

$180 - 65$

1 / 2 65 65 3 \ 4

53. In an equilateral triangle, the measure of each angle is $60°$.

54-57: Do the 3 side lengths form a triangle? Show work to justify your answer.
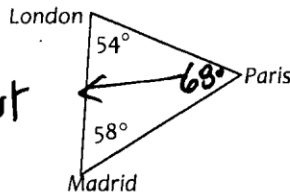
54. 1, 1, and 3 $1+1 \not> 3$ No

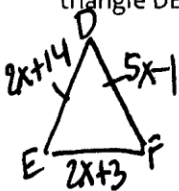**55.** 1, 2, and 3 $1+2 \not> 3$ No

56. 1, 2, and 2.4 $1+2 > 2.4$ Yes

57. 7, 8, and 17 $7+8 \not> 17$ No

58. Which two cities are farthest apart?
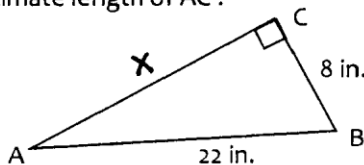
London & Madrid b/c it is opp. the largest angle (68°)

London
54°
68° Paris
58°
Madrid

59. In isosceles triangle DEF, DE = DF. If DE = 2x + 14, DF = 5x −1, and EF = 2x + 3, then the perimeter of triangle DEF is 61.

2x+14 D 5x-1
E 2x+3 F

$2x+14 = 5x-1$
$14 = 3x-1$
$15 = 3x$
$5 = x$

$DE = 2(5)+14 = 24$
$DF = 5(5)-1 = 24$
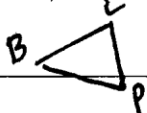$EF = 2(5)+3 = 13$

$DE + DF + EF$
$24 + 24 + 13 = 61$

60. What is the approximate length of $\overline{AC}$?

$x^2 + 8^2 = 22^2$
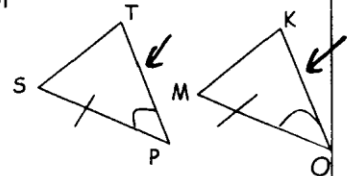$x^2 + 64 = 484$
$x^2 = 420$
$x = \sqrt{420} \approx 20.5$

C
x   8 in.
A   22 in.   B

61. If $\triangle IGH \cong \triangle KLJ$, then $\angle H$ is congruent to $\angle J$.

62. In $\triangle PBL$, what is the included angle for $\overline{BL}$ and $\overline{PL}$?
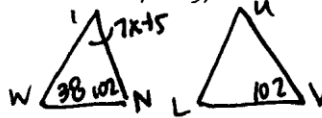
$\angle L$

B
P

63. Name one additional pair of corresponding parts that need to be congruent in order to prove that $\triangle STP \cong \triangle MKO$ by **SAS**.

$\overline{TP} \cong \overline{KO}$

T   K
S   M
P   O

64. If $\triangle WIN \cong \triangle LUV$, $m\angle W = 38$, $m\angle V = 102$, and $m\angle I = 7x + 5$, then find the value of x
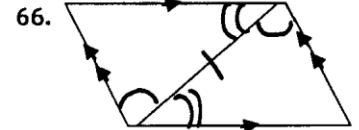
7x+5
W 38 102 N   L 102 V

$38 + 102 + 7x + 5 = 180$
$7x + 145 = 180$
$7x = 35$
$x = 5$

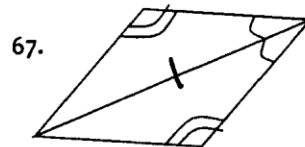**65-70: Determine which postulate or theorem will prove the triangles congruent (SSS, SAS, ASA, AAS, or HL).**
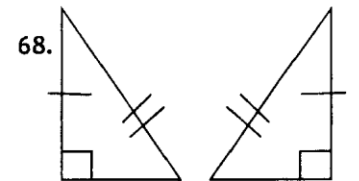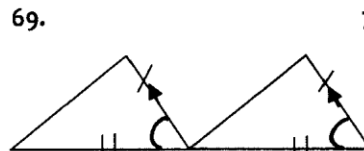
65. ASA

66. ASA

67. AAS
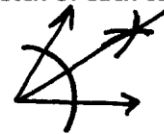
68. HL

69. SAS
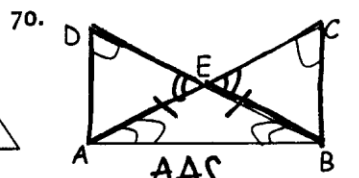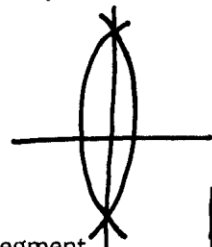
70. D C
A   E   B
AAS

71-74: Draw a rough sketch of each construction:
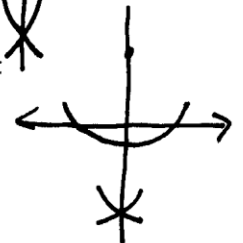
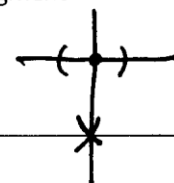**71.** An angle bisector.

72. A perpendicular bisector.

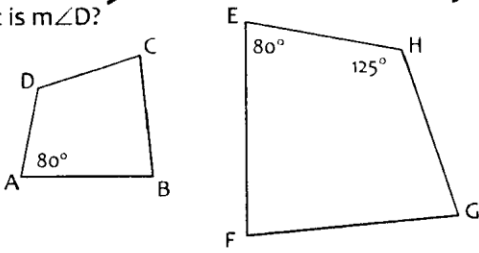**73.** A line perpendicular to a segment from a point not on the line.

74. A line perpendicular to a segment from a point on the line.

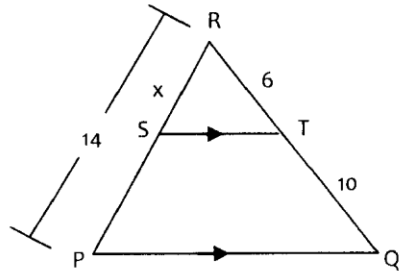**75.** If quadrilateral ABCD is similar to quadrilateral EFGH, then what is m∠D?

(125°)

76. If $\overline{ST} \parallel \overline{PQ}$, find x.

$$\frac{x}{14} = \frac{6}{16}$$
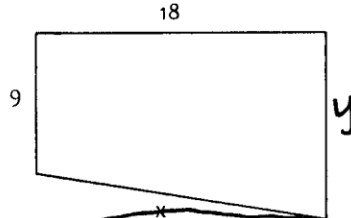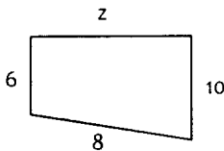$$16x = 84$$
(X=5.25)

77. If 5 : 8 = 10 : x, then what is the value of x?

$$\frac{5}{8} = \frac{10}{x} \qquad 5x = 80$$
(X=16)

78. Given the 2 similar quadrilaterals, find the scale factor, and then find x and z.

$$\frac{2}{3} = \frac{6}{9} = \frac{z}{18} = \frac{10}{y} = \frac{8}{x}$$
(Scale factor is 2:3)
$$2x = 24 \qquad 3z = 36$$
(X=12) (Z=12)

79. Find x and y.

$$\frac{x}{8} = \frac{9}{12} \qquad \frac{9}{3} = \frac{12}{y}$$
$$12x = 72 \qquad 9y = 36$$
(X=6) (y=4)

80. If ΔEFD ∼ ΔSTR, then ΔDEF ∼ __ΔRST__.
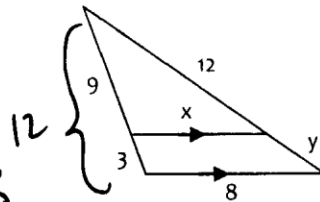
81. If ∠J ≅ ∠M, then ΔJKN ∼ __ΔMLN__. Find x.

$$\frac{18}{x} = \frac{15}{20}$$
$$15x = 360$$
(X=24)
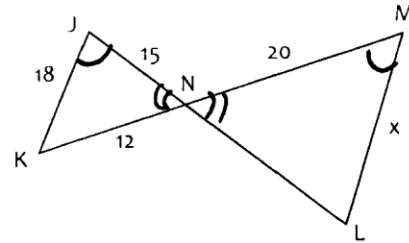
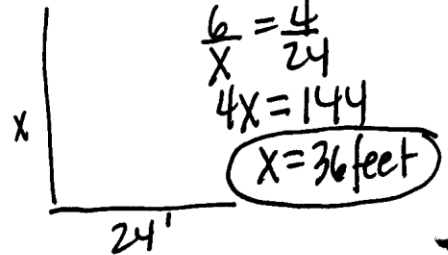**82.** Given: $\frac{7}{5} = \frac{x+2}{8}$ Solve for x.

$$5(x+2) = 56$$
$$5x + 10 = 56$$
$$5x = 46$$
(X=9.2)

83. A six foot man casts a four foot shadow. At the same time, a monument casts a 24 foot shadow. How tall is the monument?

$$\frac{6}{x} = \frac{4}{24}$$
$$4x = 144$$
(X=36 feet)

84-90: Write what property is represented by the problem.

84. If AB = CD, then AB – 2 = CD – 2 Subtraction

85. If AB = CD, then AB + 10 = CD + 10 Addition

86. If 3(4x – 5), then 12x – 15 Distributive Property

87. If a = b, then b = a Symmetric

88. If a = b, and b = c, then a = c Transitive

89. DA = DA Reflexive

90. If AB + CD = EF, and AB = 9, then 9 + CD = EF
Substitution

If you do this exam review with all diligence, and ask questions during the next block, then you will be prepared for your exam and have a good chance of doing well on it! You can do this! ☺