**Final Exam Review- Geometry 22**

**Section 1**

1.) a. false: two planes intersect at infinitely many points

 b. true c. true d. false: any 2 points are collinear, and 3 are coplanar

 e. false: any 2 lines are coplanar

2.) a. $\overbar{MN}$ $\overbar{MX}$ b. N c. A, N, X d. ANC or MNX e. no

 f. $\vec{AX}$ and $\vec{NR}$ g. $\vec{NX}$ and $\vec{NA}$ h. true i. false

****3.) a. b.

4.) a. b. c.

*A*

*B*

*A*

*B*



 d. e.

5.) a. reflection b. rotation c. translation

**Section 2**

1.) *x* = 5 2.) *x* = 4 3.) *x* = 7 4.) *x* = 5 5.) 64°

6.) a. *x* = 15 b. *x* = -3 c. *x* = 12 d. *x* = 34°

7.) a. If angles form a linear pair, then they are supplementary and adjacent.

 b. If two angles are supplementary and adjacent, then they form a linear pair.

 c. A pair of angles form a linear pair if and only if they are supplementary and adjacent.

 d. yes because both the conditional and converse are true.

8.) If a person is a pediatrician, then he/she is a doctor.

**Section 3**

1.)

 a. c.

 b. d.

**Section 3** (continued)

2.) *x* = 5 ∠BCA and ∠CFH are congruent (corresponding). ∠BCA and ∠BCD form a linear pair (=180°)

3.) *x* = 3 ∠BCA and ∠CFH are congruent (corresponding).

4.) a. 360° b. bisect each other c. congruent

 d. rhombus, square, kite e. trapezoid f. four, four

 g. parallelogram, congruent h. parallelogram i. quadrilateral

 j. 2 pairs of parallel opposite sides, 2 pairs of congruent opposite sides, 4 right angles, congruent &

 bisecting diagonals

5.) a. 70° b. 110° c. 2 in d. 3 in 6.) a. 92° b. 44° c. 90°

7.) a. *x* = 6 b. *x* = 22 8.) a. 25 units b. *x* = -4 c. midsegment

9.) a. slope = $\frac{6}{5}$ midpoint = $\left(\frac{3}{2}, 7\right)$ distance = $\sqrt{61}≈7.81$

 b. slope = 3 midpoint = $\left(9, 3\right)$ distance = $\sqrt{40}≈6.32$

10.) same, opposite reciprocal

11.) a. b. trapezoid; one pair of parallel sides with the same slope

 $\overbar{DC}∥\overbar{BA}$ with slopes = $\frac{5}{2}$

**Section 4**

1.) ABCD  HEFG

2.) a. not congruent b. not congruent c. congruent by AAS≅

3.) a. not congruent b. not congruent c. congruent by HL≅, $∆FGJ≅∆HJG$

 d. congruent by AAS≅, $∆NMO≅∆ZYX$ e. congruent by HL≅, $∆WXY≅∆EGR$

 f. congruent by SSS≅, $∆ABD≅∆CBD$

4.) a. need ∠DUT≅∠TUS b. a. need ∠L≅∠T c. need $\overbar{WV}≅\overbar{MV}$

5.) a. not similar b. similar by AA~ ∆ABC~∆DEF

 c. similar by SSS~ ∆DGF~∆RTS d. similar by SSS~ ∆ABC~∆XZY

 e. similar by SAS~ ∆TUV~∆WXY f. similar by AA~ ∆WXY~∆VZY

6.) a. not enough info b. similar, scale factor 2:3 or $\frac{2}{3}$ c. similar, scale factor 2:1 or 2

 d. similar, scale factor 1:2 or $\frac{1}{2}$

7.) a. *x* = 0.8 *y* = 126 b. *x* = 3.3 *y* = 7.6

8.) *AN* = 2.5 cm 9.) ∆s are similar by AA~ length of lake = 1.35 mi

10.) a. *x* = 6 b. *x* = 36 c. *x* = 3

11.) a. 63 ft b. 32 ft c. 26.67 ft

**Section 5**

1.) a. b = $\sqrt{27}=3\sqrt{3}$ ≈ 5.2 units b. c = 20 units c. a = 10.95 units

2.) a. *x* = $9$ *y* = $9\sqrt{2}$ b. *x* = 10 *y* = 5

 c. *x* = 22 *y* = 22 d. *x* = $7\sqrt{3}$ *y* = 73.)

12.) a. QR = $6\sqrt{3}$ ≈ 10.4 units b. QS = $3\sqrt{3}$ ≈ 5.2 units c. SR = 9 d. 31.18 units2

**Section 5 (continued)**

13.) a. 8 m2 b. 10.6 ft2

14.) a. 80 ft2 b. 120 mm2 c. 80 mi2 d. 170 in2 e. 90 m2

 f. 126 cm2

15.) a. C = 16π mm A = 64π mm2 b. C = 26π cm A = 169π cm2

 c. C = 52π ft A = 676π ft2

16.) C = 50.27 mm A = 201.06 mm2 17.) a. r = 16 in b. 19.1 ft

18.) 4 cm 19.) 15 ft 20.) 10 in 21.) 49 u2 22.) 171.68 u2

23.) a. 30.28 cm2 b. 39 cm2

**Section 6**

1.) a. triangular prism b. ABC and EFD c. $\overbar{AC}$ and $\overbar{ED}$ d. $\overbar{AC}$ and $\overbar{ED}$ e. 12 u3

2.) 16.12 in

3.) a. SA = 72 cm2 V = 32 cm3 b. SA = 48 in2 V = 18 in3

 c. SA = 672 u2 V = 930 u3 d. SA = 376.99 cm2 V = 452.39 cm3

 e. SA = 282.74 ft2 V = 314.16 ft3 f. SA = 266.4 u2 V = 256 u3

 g. SA = 144 cm2 V = 101.88 cm3 h. SA = 309.6 m2 V = 362.51 cm3

 i. SA = 785.4 cm2 V = 1170.77 cm3 j. SA = 1206.37 in2 V = 2412.74 in3

 k. SA = 452.39 cm2 V = 904.78 cm3 l. SA = 1017.88 in2 V = 3053.63 in3

 j. SA = 288 cm2 V = 336 cm3 k. SA = 89.22 in2 V = 58.65 cm3

 l. SA = 203.58 cm2 V = 218.18 cm3

4.) a. 1.038 b. 6.95

5.) a. 46 b. 1.26

6.) a. $120-120=0$ (both boxes have the same volume) b. $184-158=26$ in2

 c. 92:79

7.) 30 in

**Section 9**

1.) a. 154° b. 86° c. 240° d. 86° e.206° f. 240° g. 86°

2.) a. M = 71.62° b. L = 11$\frac{1}{3}π$

3.) a. $\overbar{FH}$; chord is bisected b. $\overbar{MK}$ and $\overbar{KH}$; All radii ≌ c. $\sqrt{3}$ or 1.73 d. FH= 4

4.) a. 14.42 b. 32

5.) Answers may vary: a. $\overbar{AL}$ b. $\overbar{BE}$ c. ∡FOE d. $\hat{AF}$ e. $\hat{BEL}$ f. $\hat{BFE}$ g. $\overbar{OF}$ h. $\overleftrightarrow{GF}$ i. F

6.) a. 39° b. 39° c. 102° d. 51° e. 90° f. 90° g. $\hat{EC}$; $\hat{ACB}$

 h. $\hat{MA}$; diameter i. tangent; chord j. 10.68 k. 26.58

7.) 60° 8.) 110° 9.) 35° 10.) 30° 11.) 130° 12.) 90° 13.) 60°

14.) 250° 15.) a. 140° b. 20° c. 3.75 d. 10.67

16.) $(x-2)^{2}+(y-4)^{2}=49$ 17.) $(x+3)^{2}+(y+1)^{2}=324$

18.) Center: (7, -12); r = 12 19.) Center: (-5, -8) r = 15

20.) a. b. c.



**Section 10**

1.) a. $\frac{\sqrt{10}}{10}$ b. $\frac{3}{7}$ c. $\frac{2\sqrt{29}}{29}$ d. $\frac{5}{2}$

2.) a. *y* = 17.2 b. *w* = 18.09 c. *x* = 21.21 d. *b* = 0.23

3.) a. θ = 30° b. θ = 40° c. θ = 39° d. θ = 37°

4.) Base of the ramp = 39 in.; Length of the ramp = 41 in.

5.) θ = 56°; *d* = 1.8 m.

**Proofs:**

1.) 1. Given

 2. Definition of right triangles

 3. Reflexive Property of Congruence

 4. Hypotenuse Leg (HL) Theorem

 5. Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

2.) 1. Given

 2. Given

 3. Definition of vertical angles

 4. Vertical Angles Theorem

 5. Side-Angle-Side (SAS) Theorem

 6. ∡CBA ≌ ∡CDE; Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

3. 2. Definition of Linear Pair

 4. Definition of Supplementary angles

 5. Substitution Property of Equality

 6. Subtraction Property of Equality

 7. Substitution Property of Equality

 8. Definition of Angle Congruence

 9. Definition of Corresponding Angles

 10. Converse of Corresponding Angles Theorem

4. 2. Isosceles Triangle Theorem

 3. Definition of Angle Congruence

 4. Given

 5. Triangle Sum Theorem

 6. Substitution Property of Equality

 7. Combine like terms

 8. Subtraction Property of Equality

 9. Division Property of Equality