

GEOMETRY FINAL EXAM REVIEW

NAME _____

Show all work on each problem!!!

1) a) $\frac{6}{x^2 - 8x + 12} \cdot \frac{x - 6}{3x - 3}$

b) $\frac{x^2 + 3x - 10}{4(x + 3)(x - 2)} \div \frac{x^2 + 6x + 5}{10(x + 1)}$

2) a) $\frac{3x + 15}{2x - 1} + \frac{x + 5}{4x - 2}$

b) $\frac{2x - 2}{x^2 + 4x - 5} \div \frac{x^2 + 2x - 15}{x^2 + x - 12}$

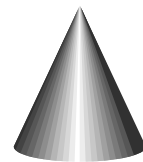
- 3) The height of the solid cone at right is 18 in and the radius is 8 in. Calculate the volume and the surface area of the cone.

Vol formula=

SA formula=

Vol =

SA=



- 4) Which of the following CANNOT used to prove that two triangles are congruent?

A. SAS B. ASA C. AAA D. SSS E. None of these

- 5) In a right triangle, if someone writes the ratio of the length of the adjacent leg (A) to the length of the hypotenuse (H) for one of the acute angles, what is the person trying to find?

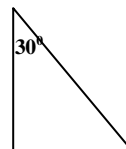
A. The tangent of one of the acute angles.
 B. The cosine of one of the acute angles.
 C. The sine of one of the acute angles.
 D. The cosine of the right angle.
 E. None of these.

- 6) What is the measure of each interior angle of a regular octagon? Show work!

A. 135° B. 120° C. 180° D. 108° E. None of these

- 7) The hypotenuse of a 30° - 60° - 90° triangle measures 14 cm. Find the length of the leg opposite the 60° angle. Show work!

A. 7 cm B. $7\sqrt{3}$ cm
 C. $7\sqrt{2}$ cm D. Not enough information E. None of these



8) Find the total surface area of a cube whose edges have a length of 3cm. Show work!

- A. 9 cm^2 B. 18 cm^2 C. 27 cm^2 D. 54 cm^2 E. None of these

9) If the sum of the measures of the interior angles of a polygon is 1980° , how many sides does the polygon have? Show work!

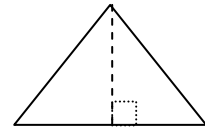
- A. 8 sides B. 11 sides C. 13 sides D. Not possible E. None of these

10) Are all sides of a rhombus congruent?

- A. Yes B. No

11) The length of the height of an equilateral triangle is $8\sqrt{3}$. Find the area of the equilateral triangle. You must first find the side using 30° - 60° - 90° ratios, then use the proper area formula. Show work!

- A. $16\sqrt{3}$ B. 64 C. $64\sqrt{3}$ D. Not enough info E. None of these



12) A regular polygon has 22 sides. What is the sum of the measures of the exterior angles?

- A. 160° B. 3600° C. 3960° D. 7920° E. None of these

Simplify each radical. Show work!

13) $\sqrt{117}$

14) $\sqrt{280}$

15) $\sqrt{8} + \sqrt{18}$

16) $\frac{\sqrt{3}}{\sqrt{10}}$

17) Which of the following can be lengths of sides of a right triangle?

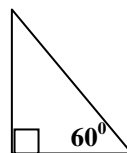
- A. 2, 3, 4 B. 5, 10, 13 C. 2, 2, 5 D. None of these

18) How many sides does a regular polygon have if the measure of each interior angle is 150° ?

- A. 8 B. 12 C. 15 D. None of these

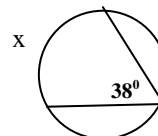
19) Find the length of the hypotenuse of a right triangle if the leg opposite a 60° is $6\sqrt{3}$ cm.

- A. 6 cm B. 12 cm C. $12\sqrt{3}$ cm D. None of these



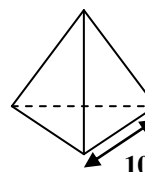
20) An inscribed angle measures 38° . Find the measure of the angle's intercepted arc.

- A. 19° B. 38° C. 76° D. None of these



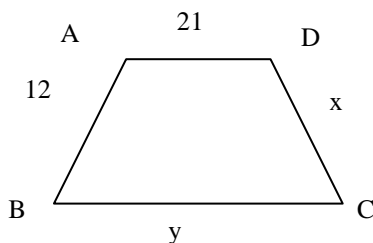
21) The total SURFACE area of the pyramid if all faces are equilateral triangles

- A. 490 B. $180 + 25\sqrt{3}$
C. $200\sqrt{3}$ D. $100\sqrt{3}$



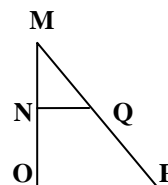
22) Quad ABCD ~ Quad HGFE. Find the perimeter of Quad ABCD.

- A. 88
B. 22
C. 66
D. 31



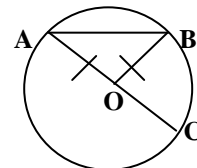
23) $NQ \parallel OP$. Calculate the length of MQ if $MN = 9$, $NO = 7$ and $MP = 20$.

- A. 11.25
B. 8.75
C. 7.5
D. 9.25
E. 10.75



24) In Circle O, $m\angle OAB = 25^\circ$. Find measure of arc AB.

- A. 155° B. 130°
C. 80° D. 100°



25) The diameter of a circle is 8 cm. The area of the circle is:

- A. $8\pi \text{ cm}^2$ B. $16\pi \text{ cm}^2$
C. $64\pi \text{ cm}^2$ D. None of these

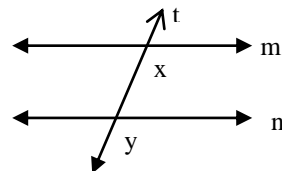
26) Given: $m \parallel n$ cut by a transversal "t". Which statement is true about $\angle x$ and $\angle y$?

A. $\angle x \approx \angle y$

B. $m\angle x < m\angle y$

C. $m\angle x + m\angle y = 180$

D. None of these



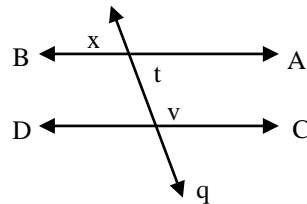
27) Given: $AB \parallel CD$ with transversal "q" and $m\angle x = 128^\circ$.

A. $m\angle t = 52^\circ, m\angle v = 128^\circ$

B. $m\angle t = 128^\circ, m\angle v = 128^\circ$

C. $m\angle t = 52^\circ, m\angle v = 52^\circ$

D. $m\angle t = 128^\circ, m\angle v = 52^\circ$



28) The lengths of two sides of a triangle are 13 and 24. The third side cannot exceed (Hint: Find the maximum)

A. 37

B. 11

C. 40

D. 8

29) Find the total Lateral Surface Area of a cylinder with radius of 3 and height of 7.
(not including the bases)

A. 21π

B. 42π

C. 60π

D. 28π

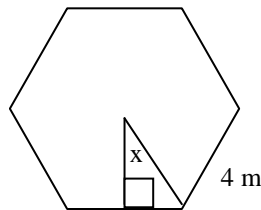
30) Solve for x in the regular hexagon if each side is 4 m.

A. 2 m

B. 4 m

C. $\sqrt{3}$ m

D. $2\sqrt{3}$ m



31) What is the equation of a circle with a center at (0,0) and a radius of 6?

Answer TRUE or FALSE to each statement.

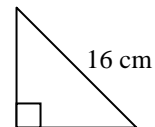
- _____ 32) An octagon has more sides than a heptagon.
- _____ 33) The median of a triangle bisects the angle.
- _____ 34) Every square is a rhombus.
- _____ 35) Every rhombus is a square.
- _____ 36) If $\triangle BOY$ is congruent to $\triangle GRL$, then $OB = GR$.
- _____ 37) AAA is one way to prove triangles are congruent.
- _____ 38) AAA, AA, SAS are the only ways to prove triangles are similar.
- _____ 39) All angles inscribed in a semicircle are right angles.
- _____ 40) The circumference of a circle is a little less than three times the length of the diameter.
- _____ 41) If 33, 44 and 55 are the lengths of the sides of a triangle, then the triangle is a right triangle.
- _____ 42) In a 30-60-90 triangle, the side opposite the angle with measure of 60° is half the length of the hypotenuse.
- _____ 43) If the corresponding side of two quadrilaterals are proportional, then the two quadrilaterals are similar.
- _____ 44) A ray has exactly one endpoint.
- _____ 45) If a statement is true, then its converse is always true.
- _____ 46) The diagonals of a trapezoid are congruent.
- _____ 47) Two segments which do not intersect are parallel.
- _____ 48) Generalizing from specific information is called Inductive Reasoning.
- _____ 49) A scalene triangle can be equiangular.

Solve and show all work for each of the following problems.

50) The sum of the measures of the interior angles of a 14-gon is _____.

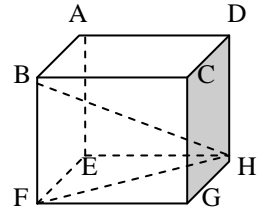
51) Find the circumference and area of a circle whose radius is 24 cm.

52) What is the area of a right isosceles triangle whose hypotenuse is 16 cm?

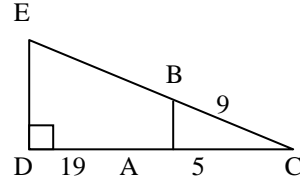


53) A sector has a central angle of 80° and the radius of 6cm. Find the area of the sector.

- 54) In the right rectangular prism shown at right below, $AD = 15\text{m}$, $CD = 20\text{m}$ and $CG = 20\text{m}$. What is the length of the diagonal BH ?



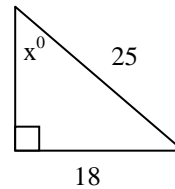
- 55) $DE \parallel AB$. Calculate the length of BE .



- 56) If a 13' flagpole casts an 18' shadow at the same time that a nearby building casts a 72' shadow, how tall is the building? Draw and label proper diagrams.

- 57) The ratio of the weights of two solid plastic balls is 64:27 (volume). What is the radius of the larger if the smaller solid plastic ball has a radius of 15cm?

- 58) Using trigonometry, find the value of x (SOH-CAH-TOA).



- 59) Calculate the expected value of 1 spin.

- 60) What is your expected point total after 50 spins?