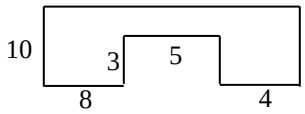
GEOMETRY PRACTICE TEST 1

Name_____ Date_____

Directions: Complete as many problems as you can in the 30 minutes allotted to you. No calculators! Figures are not drawn to scale. Do not assume any pair of line segments are congruent, parallel, or perpendicular unless specifically stated. You may assume all lines that appear straight are straight. Use 3.14 for π when necessary.

1. What is the perimeter of the following figure? Assume all consecutive sides to be perpendicular.

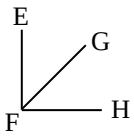


(**A**) 27 (**B**) 50 (**C**) 54 (**D**) 57 (**E**) 60

2. If the area of a circle is 36π, find the circumference.

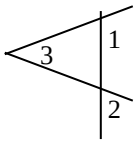
(**A**) 3π (**B**) 6π (**C**) 12π (**D**) 18π (**E**) 324π

3. If $\overline{EF} \perp \overline{FH}$, $m\angle EFG = (17x)^\circ$, and $m\angle GFH = (13x)^\circ$, find the value of *x*.



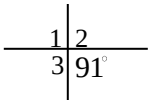
(**A**) 2 (**B**) 3 (**C**) 4 (**D**) 5 (**E**) 6

4. If $m\angle 1 = d^\circ$, $m\angle 2 = 50^\circ$, and $m\angle 3 = 80^\circ$, find *d*.



(**A**) 110 (**B**) 115 (**C**) 120 (**D**) 125 (**E**) 130

5. Which fraction has the smallest value?

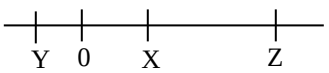


(**A**) $\dfrac{m\angle 1 + 91^\circ}{2}$ (**B**) $\dfrac{m\angle 3 + 91^\circ}{2}$ (**C**) $\dfrac{m\angle 1 + m\angle 2 + m\angle 3 + 91^\circ}{4}$ (**D**) $\dfrac{m\angle 1 + m\angle 3 + 91^\circ}{3}$ (**E**) $\dfrac{m\angle 1 + m\angle 2 + m\angle 3}{3}$

6. If $l_1 \| l_2$, $l_2 \perp l_3$, and each line lies in the same plane, then

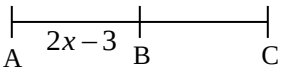
(**A**) $l_1 \| l_3$ (**B**) $l_1 \perp l_3$ (**C**) $l_2 \| l_3$ (**D**) l_1 and l_3 are skew (**E**) l_1 and l_2 are skew

7. If X is the midpoint of $\overline{YZ}$ and, $Y = -10$, and $Z = 20$ find the length of XY.



(**A**) -5 (**B**) 5 (**C**) 10 (**D**) 12 (**E**) 15

8. If AC = 7, express BC in terms of *x*.



(**A**) $4-2x$ (**B**) $6-2x$ (**C**) $7-2x$ (**D**) $8-2x$ (**E**) $10-2x$

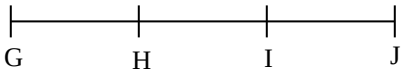
9. A circular pool has a diameter of 30 ft. and is surrounded by a 5 ft. wide deck. What is the total area of the pool and deck in square feet?

(**A**) 20π (**B**) 40π (**C**) 400π (**D**) 1225π (**E**) 1600π

10. An angle is 16° more than its complement. Find the angle.

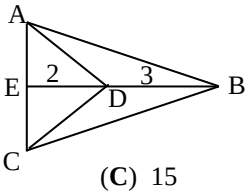
(**A**) 27° (**B**) 37° (**C**) 47° (**D**) 53° (**E**) 61°

11. What is another name for $\overrightarrow{IH}$?



(**A**) $\overrightarrow{IG}$ (**B**) $\overrightarrow{HG}$ (**C**) $\overrightarrow{HI}$ (**D**) $\overrightarrow{IJ}$ (**E**) $\overrightarrow{JH}$

12. If AC = 20, find the area of quadrilateral ABCD. Assume $\overline{AC} \perp \overline{EB}$.



(**A**) 10 (**B**) 12 (**C**) 15 (**D**) 20 (**E**) 30

13. For ΔEFG, $m\angle G=30^\circ$ and $\angle F$ is an obtuse angle. Which of the following best describes $\angle E$?

(**A**) $<60^\circ$ (**B**) $>60^\circ$ (**C**) $<50^\circ$ (**D**) $>50^\circ$ (**E**) $<40^\circ$

14. What is the ratio of the diameter of a circle to its area?

(**A**) $\frac{1}{\pi}$ (**B**) $\frac{2}{\pi r}$ (**C**) $\frac{2}{\pi}$ (**D**) $\frac{1}{\pi r}$ (**E**) $\frac{2}{\pi r^2}$

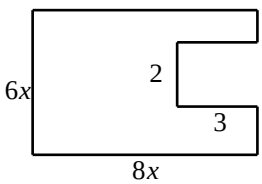
15. The intersection of two planes is a

(**A**) line (**B**) point (**C**) midpoint (**D**) segment (**E**) ray

16. There is exactly one_____ through any two points.

(**A**) plane (**B**) ray (**C**) point (**D**) line (**E**) angle

17. Find the area of the following figure. Assume all pairs of consecutive sides to be perpendicular.

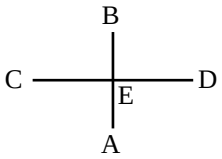


(**A**) $28x+6$ (**B**) $42x$ (**C**) $42x^2$ (**D**) $48x-6$ (**E**) $48x^2-6$

18. Two acute adjacent angles will _____ be supplementary.

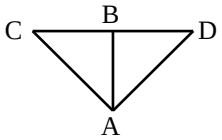
(**A**) always (**B**) usually (**C**) sometimes (**D**) seldom (**E**) never

19. If CE = 12, ED = 12, and $\overline{BA} \perp \overline{CD}$, which of the following, A through D, cannot be proven true?



(**A**) $\overline{BA}$ bisects $\overline{CD}$ (**B**) AB – BE = AE (**C**) $\overline{CD}$ is a $\perp$ bisector (**D**) $CE = \frac{1}{2}CD$ (**E**) all statements are true

20. What special name does $\overline{AB}$ have if CB = DB?



(**A**) median (**B**) altitude (**C**) $\perp$ bisector (**D**) angle bisector (**E**) no names apply

21. What is the ratio of 11 hours, 59 minutes, and 60 seconds to one week?

(**A**) $\frac{1}{28}$ (**B**) $\frac{1}{14}$ (**C**) $\frac{1}{12}$ (**D**) $\frac{1}{7}$ (**E**) $\frac{1}{2}$

22. If each edge of a cube is tripled, how many times greater will the total surface area become?

(**A**) 3 (**B**) 6 (**C**) 9 (**D**) 27 (**E**) 54

23. If you double the length and the width of a rectangle, how many times larger will the area be?

(**A**) 2 (**B**) 4 (**C**) 6 (**D**) 8 (**E**) 16

24. If each base of a trapezoid is doubled, how many times larger will the area become?

(**A**) 2 (**B**) 4 (**C**) 8 (**D**) 12 (**E**) 16

25. If the radius of a cylinder is tripled and its height is doubled, how many times larger will the volume become?

(**A**) 6 (**B**) 9 (**C**) 12 (**D**) 18 (**E**) 36

GEOMETRY PRACTICE TEST 2

Name_____ Date_____

Directions: Complete as many problems as you can in the 30 minutes allotted to you. No calculators! Figures are not drawn to scale. Do not assume any pair of line segments are congruent, parallel, or perpendicular unless specifically stated. You may assume all lines that appear straight are straight. Use 3.14 for π when necessary.

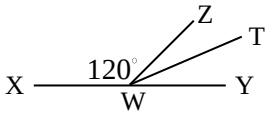
1. If a is the midpoint of -11 and 4, find the coordinate of a.
(**A**) -7.5 (**B**) -5.5 (**C**) -4.5 (**D**) -3.5 (**E**) -2.5

2. Find the radius of a circle whose circumference is π inches.
(**A**) 0.25 inches (**B**) 0.5 inches (**C**) 1 inches (**D**) 3.14 inches (**E**) 3.14×0.5 inches

3. What is the difference between the smallest obtuse angle whose measure is a prime number and the largest acute angle whose measure is a prime number?
(**A**) 4 (**B**) 6 (**C**) 8 (**D**) 10 (**E**) 12

4. If two-thirds of an inch equals 1 foot on some building plans, and the building is 36 inches long on paper, how long is the actual building in yards?
(**A**) 8 yd. (**B**) 18 yd. (**C**) 24 yd. (**D**) 36 yd. (**E**) 54 yd.

5. If $\overrightarrow{WT}$ bisects $\angle ZWY$, find $m\angle TWY$.

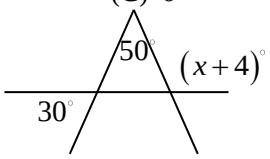


(**A**) 30° (**B**) 40° (**C**) 45° (**D**) 50° (**E**) 60°

6. If each edge of the cube is now 5 times greater, how many times greater will the volume become?
(**A**) 5 times (**B**) 15 times (**C**) 25 times (**D**) 64 times (**E**) 125 times

7. If the area of a parallelogram is 60 and the base is 10, what is the value of the base minus the height?
(**A**) 4 (**B**) 5 (**C**) 6 (**D**) 7 (**E**) 8

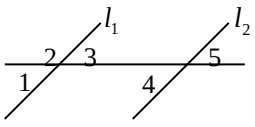
8. What is the value of x?



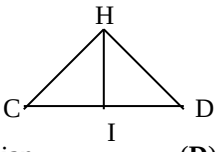
(**A**) 76 (**B**) 80 (**C**) 84 (**D**) 96 (**E**) 104

9. The radius of a cylinder is 2 and the height is 5. If you triple the radius and double the height, what will the new volume be? The volume of a cylinder equals $\pi r^2 h$.
(**A**) 20π (**B**) 36π (**C**) 240π (**D**) 360π (**E**) 640π

10. Which pair of angles are corresponding angles?
(**A**) 1 and 2 (**B**) 1 and 3 (**C**) 3 and 5 (**D**) 2 and 5 (**E**) 3 and 4

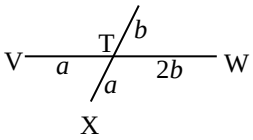


11. If $\overline{HI} \perp \overline{CD}$, what special name does $\overline{HI}$ have?



(**A**) angle bisector (**B**) $\perp$ bisector (**C**) median (**D**) altitude (**E**) no names apply

12. If $\overline{XY}$ bisects $\overline{VW}$ at T and $XY = 60$, find *b*.



(**A**) 10 (**B**) 15 (**C**) 20 (**D**) 25 (**E**) 30

13. The area of a triangle is twice the area of a rectangle. If the height of each is 4 and the base of the rectangle is 6, what is the length of the base of the triangle?

(**A**) 12 (**B**) 24 (**C**) 30 (**D**) 36 (**E**) 48

14. If $\Delta GLK \cong \Delta NWT$, which of the following is not necessarily true?

(**A**) $\overline{GK} \cong \overline{NT}$ (**B**) $\angle KGL \cong \angle TNW$ (**C**) $\angle GKL \cong \angle WTN$ (**D**) $\overline{KL} \cong \overline{TW}$ (**E**) $\angle GKL \cong \angle TWN$

15. Equilateral triangles are _____ equiangular.

(**A**) always (**B**) usually (**C**) sometimes (**D**) seldom (**E**) never

16. Given $v = \frac{4}{3}\pi r^3$, if the radius of a sphere is tripled, how many times larger will the volume become?

(**A**) 3 (**B**) 6 (**C**) 9 (**D**) 18 (**E**) 27

17. If $\frac{3}{8}$ of the area of a triangle is 24, what is $\frac{5}{16}$ of the area of the triangle?

(**A**) 16 (**B**) 18 (**C**) 20 (**D**) 32 (**E**) 45

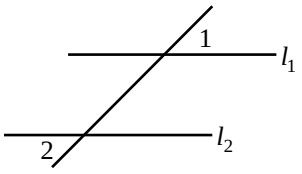
18. Find the area of a trapezoid with vertices $(3,1), (4,-1), (-3,-1)$, and $(-2,1)$.

(**A**) 2 (**B**) 12 (**C**) 13 (**D**) 14 (**E**) 21

19. The area of a square and a rectangle both equal 36. If the width of the rectangle is 2 less than the side of a square, how much longer is the length of the rectangle than the side of the square?

(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

20. The $m\angle 1 = (6x+4)^\circ$ and the $m\angle 2 = (2x+32)^\circ$. If $l_1 \| l_2$, what is the $m\angle 1$?



(**A**) 7° (**B**) 18° (**C**) 46° (**D**) 112° (**E**) 134°

21. Find the value of $2\left[\frac{\pi\left(\frac{C}{2\pi}\right)^2}{rd\pi}\right]-1$ where C (circumference), *r* (radius), and *d* (diameter) represent the same circle.

(**A**) 0 (**B**) $\frac{1}{2}$ (**C**) 1 (**D**) 2 (**E**) 3

22. Which is not a characteristic of all parallelograms.

(**A**) opposite sides are congruent (**B**) opposite angles are congruent (**C**) opposite sides are parallel
(**D**) diagonals are congruent (**E**) diagonals bisect each other

23. A rectangular backyard, with a width of 100 feet and a length of 120 feet, contains a circular pool with a diameter of 20 feet. Find the area of the backyard not covered by the pool.

(**A**) 10,744 (**B**) 11,262 (**C**) 11,464 (**D**) 11,686 (**E**) 11,937.2

24. A six sided figure is called a

(**A**) octagon (**B**) pentagon (**C**) heptagon (**D**) hexagon (**E**) nonogon

25. 6, 9, and 6 are three sides of what type of triangle?

(**A**) scalene (**B**) acute (**C**) right (**D**) isosceles (**E**) none

GEOMETRY PRACTICE TEST 3

Name_____ Date_____

Directions: Complete as many problems as you can in the 30 minutes allotted to you. No calculators! Figures are not drawn to scale. Do not assume any pair of line segments are congruent, parallel, or perpendicular unless specifically stated. You may assume all lines that appear straight are straight. Use 3.14 for π when necessary.

1. Which property does the following equation illustrate? $x(y+z)+0=(y+z)x+0$

   (**A**) identity (**B**) associative (**C**) commutative (**D**) distributive (**E**) transitive

2. Find the measure of an angle that is 6 more than twice its complement.

   (**A**) 54° (**B**) 56° (**C**) 58° (**D**) 60° (**E**) 62°

3. Which is not a characteristic of all rectangles?

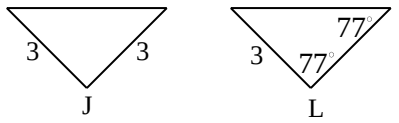
   (**A**) opposite sides are parallel (**B**) opposite angles are congruent (**C**) diagonals bisect each other
   (**D**) diagonals are congruent (**E**) diagonals are perpendicular

4. Through a point not on a line, there is

   I. 1 line skew to the given line
   II. 1 line perpendicular to the given line
   III. 1 line parallel to the given line

   (**A**) I (**B**) II (**C**) III (**D**) I and III (**E**) II and III

5. Which of the following must be true?



   (**A**) $\Delta JHI \cong \Delta KML$ (**B**) $\Delta HJI \cong \Delta MLK$ (**C**) $\Delta IHJ \cong \Delta LKM$ (**D**) $\Delta HIJ \cong \Delta MKL$ (**E**) not enough information

6. For ΔWXZ, XY is a median to ZW. Which of the following does not have to be true?

   (**A**) ZY = YW (**B**) $\frac{ZY}{ZX}=\frac{YW}{ZX}$ (**C**) $ZY=\frac{1}{2}ZW$ (**D**) $m\angle ZXY = m\angle WXY$ (**E**) $XY+ZY=XY+YW$

7. If each base of a trapezoid is tripled, how many times larger will the area become?

   (**A**) $\frac{3}{2}$ (**B**) $\frac{9}{2}$ (**C**) 3 (**D**) 6 (**E**) 9

8. If the radius of a sphere is tripled, how many times larger will the volume of the sphere be ? The volume of a sphere is $\frac{4}{3}\pi r^3$.

   (**A**) 3 (**B**) 9 (**C**) 12 (**D**) 27 (**E**) 36

9. If a 4 ft. person casts a 10 ft. shadow, how tall is a person that casts a 12 ft. shadow?

   (**A**) 4.4 ft. (**B**) 4.6 ft. (**C**) 4.8 ft. (**D**) 5 ft. (**E**) 5.2 ft.

10. If the perimeter of ΔMLN is 24, $m\angle L = m\angle N$, and $LN = 4$, find ML.

    (**A**) 8 (**B**) 10 (**C**) 12 (**D**) 14 (**E**) 16

11. Every square is a _____.

    I. Rhombus II. Rectangle III. Parallelogram

    (**A**) II (**B**) I and II (**C**) I and III (**D**) II and III (**E**) I, II, and III

12. If WXYZ is a parallelogram, which of the following must always be true?

    (**A**) $\overline{WY}$ and $\overline{YX}$ bisect each other (**B**) $\angle XWZ \cong \angle XYZ$ (**C**) $\overline{WY} \perp \overline{ZX}$
    (**D**) $\overline{WY} \cong \overline{ZX}$ (**E**) $\overline{ZX}$ bisects $\angle WXY$

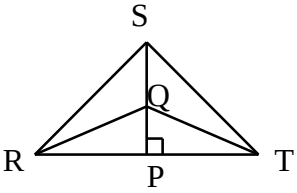
13. If PQRS is a parallelogram and $m\angle Q = 62^\circ$, find the value of $m\angle P - m\angle R + m\angle S$

    (**A**) 62° (**B**) 118° (**C**) 124° (**D**) 164° (**E**) 174°

14. Which sets of numbers represents the lengths of the sides of a right triangle?

    (**A**) 3, 4, 6 (**B**) 6, 8, 12 (**C**) 9, 12, 16 (**D**) 4, 8, 10 (**E**) 12, 16, 20

15. The area of quadrilateral STQR is 15, $SP = 8$, and $RT = 10$. Find QP.

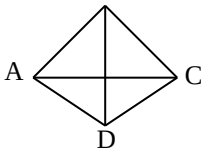


(**A**) 2 (**B**) 3 (**C**) 3.5 (**D**) 4 (**E**) 5

16. $\overline{XY}$ bisects $\overline{VW}$ at T. What is the value of *b* if $VT = 4a$, $TW = 8b$, $XT = 3a$, $TY = 4b$, and $XY = 60$.

(**A**) 6 (**B**) 7 (**C**) 8 (**D**) 9 (**E**) 12

17. Given $\overline{BD} \perp \overline{AC}$, $BD = 16$ inches, and the area of ABCD = 40 in^2, find AC.
Hint: Focus on the area of ΔABC and ΔADC.



(**A**) 2.5 in. (**B**) 5 in. (**C**) 6 in. (**D**) 8 in. (**E**) 12in.

18. Find the volume of a right rectangular solid if the width is twice the length, *l*, and the height is twice the width.

(**A**) $4l^3$ (**B**) $6l^3$ (**C**) $8l^3$ (**D**) $8l^2$ (**E**) $28l^2$

19. If *a* is the midpoint of 4 and $-x$, find the coordinate of *x*.

(**A**) $4-2a$ (**B**) $2-2a$ (**C**) $2a-4$ (**D**) $\frac{2}{a}$ (**E**) $\frac{4}{a}$

20. A triangle that has sides of 3, 4, and 6 is what type of triangle?

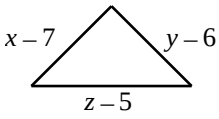
(**A**) scalene right (**B**) isosceles obtuse (**C**) scalene acute (**D**) isosceles acute (**E**) scalene obtuse

21. If *A* = area of a circle, *r* = radius, and *C* = circumference, what does diameter equal?

I. $\frac{C}{\pi}$ II. $2r$ III. $2\cdot\sqrt{\frac{A}{\pi}}$

(**A**) I only (**B**) II only (**C**) I and II (**D**) II and III (**E**) I, II, and III

22. The following figure is an equilateral triangle.



(**A**) $x < y < z$ (**B**) $x < z < y$ (**C**) $z < x < y$ (**D**) $z < y < x$ (**E**) $y < z < x$

23. The circumference of Circle X is 8 times the circumference of Circle Y. How many times longer will the diameter of Circle X be than the diameter of Circle Y?

(**A**) 4 (**B**) 4π (**C**) 7 (**D**) 8 (**E**) 8π

24. The interior angle sum of a hexagon is

(**A**) 360° (**B**) 540° (**C**) 720° (**D**) 900° (**E**) 1080°

25. The interior angle sum of a convex polygon is 18000°. How many sides does the polygon have?

(**A**) 98 (**B**) 100 (**C**) 102 (**D**) 1000 (**E**) 1002

GEOMETRY PRACTICE TEST 4

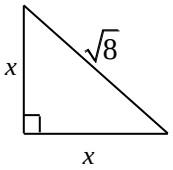
Name_____ Date_____

Directions: Complete as many problems as you can in the 30 minutes allotted to you. No calculators! Figures are not drawn to scale. Do not assume any pair of line segments are congruent, parallel, or perpendicular unless specifically stated. You may assume all lines that appear straight are straight. Use 3.14 for π when necessary.

1. Find the total area of a right rectangular solid if the dimensions are 6, 5, and 4.
   (**A**) 74 (**B**) 120 (**C**) 148 (**D**) 180 (**E**) 240

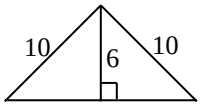
2. The sum of the number of sides of a hexagon and an octagon equals
   (**A**) 13 (**B**) 14 (**C**) 15 (**D**) 16 (**E**) 17

3. Find the value of *x*.



   (**A**) 2 (**B**) $\sqrt{2}$ (**C**) $\sqrt{3}$ (**D**) $2\sqrt{2}$ (**E**) 4

4. Find the perimeter of the following isosceles triangle.



   (**A**) 36 (**B**) 40 (**C**) 42 (**D**) 46 (**E**) 50

5. When constructing a circumscribed circle about a triangle, _____ need to be constructed.
   (**A**) 2 diameters (**B**) 2 medians (**C**) 2 $\angle$ bisectors (**D**) 2 $\perp$ bisectors (**E**) 2 altitudes

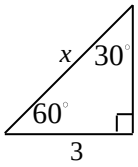
6. How many sides does a convex polygon have if the interior angle sum is $3{,}600^\circ$?
   (**A**) 16 (**B**) 18 (**C**) 20 (**D**) 22 (**E**) 24

7. If the sum of two angles is 64° and the difference between the two angles is 36°, what is the measure of the smallest angle?
   (**A**) 14° (**B**) 16° (**C**) 18° (**D**) 20° (**E**) 50°

8. What is the ratio of the area of a circle to its circumference? Let *A* represent area, *r* represent radius, and *d* represent diameter.
   (**A**) $\frac{r^2}{2}$ (**B**) $\frac{d}{2}$ (**C**) $\frac{r}{2}$ (**D**) $\frac{2}{r}$ (**E**) $\frac{2}{d}$

9. Find the area of a triangle if the base is 4 and the height is 6.
   (**A**) 10 (**B**) 12 (**C**) 14 (**D**) 16 (**E**) 24

10. Find the value of *x*.

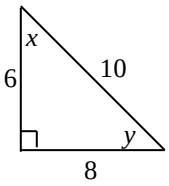


(**A**) 6 (**B**) $2\sqrt{3}$ (**C**) $3\sqrt{2}$ (**D**) $3\sqrt{3}$ (**E**) 12

11. Find the positive value of *w* if the geometric mean between 1 and 9 is *w*.

(**A**) 3 (**B**) 3.5 (**C**) 4 (**D**) 4.5 (**E**) 5

12. Which of the following is the largest?



(**A**) $\sin x$ (**B**) $\cos x$ (**C**) $\tan y$ (**D**) $\tan x$ (**E**) $\cos y$

13. The total area of a cylinder is $2\pi rh + 2\pi r^2$. If the diameter is 12 and the height is 8, how much will the total area be?

(**A**) 168π (**B**) 186π (**C**) 196π (**D**) 224π (**E**) 480π

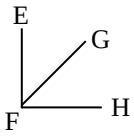
14. If you change the diameter of a sphere so that the diameter is doubled, by how many times larger will the volume be? The volume of a sphere equals $\frac{4}{3}\pi r^3$.

(**A**) 6 times (**B**) 8 times (**C**) 12 times (**D**) 27 times (**E**) 64 times

15. If the diameter of a circle is tripled, then the area of the new circle will be how many times greater?

(**A**) 3x (**B**) 6x (**C**) 9x (**D**) 12x (**E**) 36x

16. If $\overline{EF} \perp \overline{FH}$, $m\angle EFG = (17x)^\circ$, and $m\angle GFH = (13x)^\circ$, find the value of $\sqrt{3x}+1$.

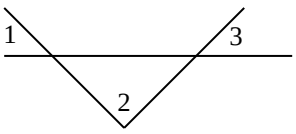


(**A**) $\sqrt{3}+1$ (**B**) $\sqrt{6}+1$ (**C**) $\sqrt{180}+1$ (**D**) 4 (**E**) 10

17. The total area of a cylinder is $2\pi rh + 2\pi r^2$. If the radius is doubled, by how much will the total area increase?

(**A**) $2\pi rh + 4\pi r^2$ (**B**) $2\pi rh + 6\pi r^2$ (**C**) $2\pi rh + 10\pi r^2$ (**D**) $4\pi rh + 4\pi r^2$ (**E**) $4\pi rh + 6\pi r^2$

18. Given $m\angle 1 = 20^\circ$ and $m\angle 2 = (150 - 3x)^\circ$, express the $m\angle 3$ in terms of *x*.



(**A**) $(10+3x)^\circ$ (**B**) $(10-3x)^\circ$ (**C**) $(30+3x)^\circ$ (**D**) $(30-3x)^\circ$ (**E**) $(50+3x)^\circ$

19. If the leg of an isosceles right triangle is 8, how much longer is the hypotenuse than the leg?

(**A**) $8\sqrt{3}-8$ (**B**) $8\sqrt{2}-8$ (**C**) 8 (**D**) $16\sqrt{2}-8$ (**E**) $8\sqrt{2}$

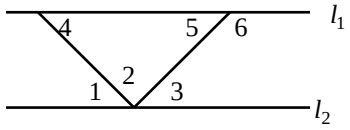
20. The longest leg of a 30-60-90 triangle is 12. Which of the following would be equivalent to the length of the hypotenuse?

(**A**) $12\sqrt{3}$ (**B**) 24 (**C**) $24\sqrt{3}$ (**D**) $\frac{12}{\sqrt{3}}$ (**E**) $\frac{24}{\sqrt{3}}$

21. If each edge of the cube is doubled and the volume is now 64 in^3, what was the original length of the edge of the cube?

(**A**) 2 inches (**B**) 4 inches (**C**) 6 inches (**D**) 8 inches (**E**) 16 inches

22. If $m\angle 4=(2x+2)^\circ$, $m\angle 2=(3x+3)^\circ$, and $m\angle 3=(4x-14)^\circ$, find $m\angle 2$. Assume $l_1 \| l_2$.



(**A**) 21° (**B**) 22° (**C**) 63° (**D**) 66° (**E**) 69°

23. Find the perimeter of an isosceles triangle if the altitude to the base is 3 and the base is 8. Assume the base is a side of the triangle that is not one of the congruent sides.

(**A**) 16 (**B**) 18 (**C**) 20 (**D**) 22 (**E**) 24

24. What is the supplement of the smallest obtuse angle that is prime?

(**A**) 81° (**B**) 83° (**C**) 87° (**D**) 89° (**E**) 97°

25. Find the length of the leg of an isoscoles right triangle if the hypotenuse is 12.

(**A**) $6\sqrt{3}$ (**B**) $\frac{6}{\sqrt{3}}$ (**C**) $\frac{6}{\sqrt{2}}$ (**D**) $\frac{12}{\sqrt{3}}$ (**E**) $\frac{12}{\sqrt{2}}$

GEOMETRY TEST 1 ANSWERS

1. E	2. C	3. B	4. E	5. E
6. B	7. E	8. E	9. C	10. D
11. A	12. E	13. A	14. B	15. A
16. D	17. E	18. E	19. C	20. A
21. B	22. C	23. B	24. A	25. D

1. $2(8+3+5+4+10)=60$
2. $36\pi=\pi r^2 \rightarrow r=6,\ d=12 \rightarrow C=\pi d=12\pi$
3. $17x+13x=90 \rightarrow x=3$
4. $m\angle 3+m\angle 2=m\angle 1 \rightarrow 80+50=130$
5. A = 91; B = 90; C = 90; D is greater than E because $91^\circ > m\angle 2$
6. $l_1 \perp l_3$
7. $5-(-10)=15$
8. $7-(2x-3)=10-2x$
9. $A=\pi r^2=\pi(20)^2=400\pi$
10. $x=16+(90-x) \rightarrow x=53$
11. $\overrightarrow{IG}$
12. $A_{\Delta ABC}-A_{ADC}=A_{ABCD} \rightarrow \frac{1}{2}\cdot 20\cdot 5-\frac{1}{2}\cdot 20\cdot 2=30$
13. $m\angle E=180^\circ-(m\angle G+m\angle F)=180^\circ-\left[30^\circ+(90^\circ+x^\circ)\right]=150^\circ-(90^\circ+x^\circ)=60^\circ-x^\circ$ which is an angle less than 60°.
14. $\frac{d}{\pi r^2}=\frac{2r}{\pi r^2}=\frac{2}{\pi r}$
15. line
16. line
17. $(6x\cdot 8x)-(2\cdot 3)=48x^2-6$
18. never
19. C
20. median
21. 11 hr 59 min 60 sec = 12 hours. $\frac{12 \text{ hours}}{24 \text{ hours/day}\times 7 \text{ days}}=\frac{1}{2\times 7}=\frac{1}{14}$
22. $TA_1=6e^2 \quad TA_2=6(3e)^2=9(6e)^2=9TA_1$
23. $A_1=lw;\quad A_2=(2l)(2w)=4(lw)=4A_1$
24. $A_1=\frac{1}{2}h(b_1+b_2);\quad A_2=\frac{1}{2}h(2b_1+2b_2)=2\left[\frac{1}{2}h(b_1+b_2)\right]=2A_1$
25. $V_1=Bh=\pi r^2 h;\quad V_2=Bh=\pi r^2 h=\pi(3r)^2(2h)=18\pi r^2 h=18V_1$

GEOMETRY TEST 2 ANSWERS

1. D	2. B	3. C	4. B	5. A
6. E	7. A	8. A	9. D	10. C
11. D	12. C	13. B	14. E	15. A
16. E	17. C	18. B	19. C	20. C
21. A	22. D	23. D	24. D	25. D

1. $\frac{-11+4}{2}=-3.5$
2. $C=\pi d=\rightarrow \pi=\pi d\rightarrow d=1\rightarrow r=0.5$
3. $97-89=8$
4. $36\div\frac{2}{3}=54\,ft.=18\,yd.$
5. $m\angle \mathrm{TWY}=\frac{1}{2}\cdot 60^{\circ}=30^{\circ}$
6. 125
7. $h=\frac{A}{b}=\frac{60}{10}=6\rightarrow b-h=10-6=4$
8. $x+4=80\rightarrow x=76$
9. $V=\pi(6)^2\cdot 10=360\pi$
10. 3 and 5
11. altitude
12. $\begin{cases}a+b=60\\a=2b\end{cases}\rightarrow 2b+b=60\rightarrow b=20$
13. $A_{\Delta}=2A_{\text{rect}}\rightarrow \frac{1}{2}b_1 4=2\cdot 6\cdot 4\rightarrow b_1=24$
14. E
15. always
16. $\mathrm{V}_1=\frac{4}{3}\pi r^3;\ \ \mathrm{V}_2=\frac{4}{3}\pi r^3=\frac{4}{3}\pi(3r)^3=27\left(\frac{4}{3}\pi r^3\right)=27\mathrm{V}_1$
17. $\frac{3}{8}A=24\ \rightarrow\ A=24\cdot\frac{8}{3}=64\ \rightarrow\ \frac{5}{16}A=\frac{5}{16}\cdot 64=20$
18. $\mathrm{A}=\frac{1}{2}h(b_1+b_2)=\frac{1}{2}\cdot 2(7+5)=12$
19. $s^2=36\rightarrow s=6$, therefore $w=s-2=6-2=4$. $\mathrm{A}=lw\rightarrow l=\frac{\mathrm{A}}{w}=\frac{36}{4}=9$. $l-s=9-6=3$
20. $6x+4=2x+32\rightarrow x=7\rightarrow m\angle 1=6\cdot 7+4=46^{\circ}$
21. $2\left[\frac{\pi\left(\frac{\mathrm{C}}{2\pi}\right)^2}{rd\pi}\right]-1=2\left[\frac{\pi\left(\frac{2\pi r}{2\pi}\right)^2}{r\cdot 2r\pi}\right]-1=2\left(\frac{\pi r^2}{r\cdot 2r\pi}\right)-1=1-1=0$
22. D
23. $lw-\pi r^2=100\cdot 120-3.14(10)^2=12000-314=11{,}686$
24. hexagon by definition.
25. isosceles by definition.

GEOMETRY TEST 3 ANSWERS

1. C	2. E	3. E	4. E	5. A
6. D	7. C	8. D	9. C	10. B
11. E	12. B	13. A	14. E	15. E
16. A	17. B	18. C	19. A	20. E
21. E	22. D	23. D	24. C	25. C

1. commutative
2. $x = 6 + 2(90 - x) \rightarrow x = 6 + 180 - 2x \rightarrow 3x = 186 \rightarrow x = 62$
3. diagonals are perpendicular
4. II and III
5. $\Delta JHI \cong \Delta KML$
6. It cannot be proven true that $m\angle ZXY = m\angle WXY$.
7. 3
8. $V = \frac{4}{3}\pi(3r)^3 = 27\left(\frac{4}{3}\pi r^3\right)$
9. $\frac{4}{10} = \frac{x}{12} \rightarrow x = 4.8$
10. $2x + 4 = 24 \rightarrow x = 10$
11. I, II, and III
12. $\angle XWZ \cong \angle XYZ$
13. $m\angle P - m\angle R + m\angle S = 0 + 62^\circ = 62^\circ$
14. 12, 16, and 20
15. $Area_{\Delta RST} - Area_{RSTQ} = Area_{\Delta RQT} \rightarrow \frac{1}{2} \cdot 10 \cdot 8 - 15 = \frac{1}{2} \cdot 10 \cdot QP \rightarrow 25 = 5QP \rightarrow QP = 5$
16. $\begin{cases} 3a + 4b = 60 \\ 4a = 8b \end{cases} \rightarrow \begin{cases} 3a + 4b = 60 \\ a = 2b \end{cases} \rightarrow 6b + 4b = 60 \rightarrow b = 6$
17. $40 = \frac{1}{2}h_1 b + \frac{1}{2}h_2 b \rightarrow 40 = \frac{1}{2}b(h_1 + h_2)\ 40 = \frac{1}{2}b \cdot 16 \rightarrow b = 5$
18. $V = lwh = l(2l)(4l) = 8l^3$
19. $\frac{4 - x}{2} = a \rightarrow x = 4 - 2a$
20. 3,4,5 is right. Therefore 3,4,6 is obtuse. Also scalene.
21. Solving the circumference equation for diameter produces I. II is obviously true. Solving the area equation of a circle for diameter produces III.
22. $x - 7 = y - 6 \rightarrow x = y + 1 \rightarrow y < x$; $x - 7 = z - 5 \rightarrow x = z + 2 \rightarrow z < x$; $y - 6 = z - 5 \rightarrow y = z + 1 \rightarrow z < y$.
$\therefore z < y < x$
23. $C_x = 8C_y \rightarrow \pi d_x = 8\pi d_y \rightarrow d_x = 8d_y$
24. $S = (n - 2)180^\circ = (6 - 2)180^\circ = 720^\circ$
25. $S = (n - 2)180^\circ \rightarrow 18000 = (n - 2)180 \rightarrow 100 = n - 2 \rightarrow n = 102$

GEOMETRY TEST 4 ANSWERS

1. C	2. B	3. A	4. A	5. D
6. D	7. A	8. C	9. B	10. A
11. A	12. D	13. A	14. B	15. C
16. D	17. B	18. A	19. B	20. E
21. A	22. D	23. B	24. B	25. E

1. $2(6\cdot 5+4\cdot 5+6\cdot 4)=2(30+20+24)=148$
2. 6 + 8 = 14
3. Since it is a 45-45-90 triangle, then $h=l\sqrt{2}$. Therefore $x=\dfrac{\sqrt{8}}{\sqrt{2}}=2$
4. $6^2+x^2=10^2\rightarrow x=8\rightarrow \text{base}=2x=16\rightarrow \text{perimeter}=10+10+16=36$
5. 2 perpendicular bisectors
6. $3600=(n-2)180\rightarrow n-2=20\rightarrow n=22$
7. $\begin{cases}x+y=64\\x-y=36\end{cases}\rightarrow 2x=100\rightarrow x=50,\ y=14$
8. $\dfrac{\pi r^2}{2\pi r}=\dfrac{r}{2}$
9. $A=\dfrac{1}{2}bh=\dfrac{1}{2}\cdot 4\cdot 6=12$
10. $h=2s=2\cdot 3=6$
11. $\dfrac{1}{w}=\dfrac{w}{9}\rightarrow w^2=9\rightarrow w=\pm 3$. Therefore 3.
12. $\tan x$
13. $2\pi\cdot 6\cdot 8+2\pi\cdot 36=96\pi+72\pi=168\pi$
14. If the diameter is doubled, then the radius is doubled. Therefore $V=\dfrac{4}{3}\pi(2r)^3=\dfrac{4}{3}\pi(8r^3)=8\left(\dfrac{4}{3}\pi r^3\right)$
15. When the diameter is tripled, the radius is also tripled. Therefore $\mathrm{A}=\pi r^2=\pi(3r)^2=9\pi r^2$.
16. $17x+13x=90\rightarrow x=3\rightarrow \sqrt{3x}+1=3+1=4$
17. $A_1-A_2=2\pi(2r)h+2\pi(2r)^2-(2\pi rh+2\pi r^2)=4\pi rh+8\pi r^2-2\pi rh-2\pi r^2=2\pi rh+6\pi r^2$
18. $m\angle 1+m\angle 2+m\angle 3=180^\circ\rightarrow 20+150-3x+m\angle 3=180^\circ\rightarrow m\angle 3=(10+3x)^\circ$
19. $h=8\sqrt{2}$. Therefore $8\sqrt{2}-8$
20. $l=\sqrt{3}s\rightarrow 12=\sqrt{3}s\rightarrow s=\dfrac{12}{\sqrt{3}}$ and $h=2s=\dfrac{24}{\sqrt{3}}$
21. $v=e^3\rightarrow 64=(2e)^3\rightarrow e=2$
22. $m\angle 4+m\angle 2+m\angle 3=180\rightarrow 9x-9=180\rightarrow x=21\rightarrow m\angle 2=66^\circ$
23. 10 + 4 + 4 = 18
24. The smallest obtuse angle that is prime is 97°. Therefore the supplement of 97° is 83°.
25. For a 45-45-90 triangle, the hypotenuse equals $\sqrt{2}$ times a leg. $l=\dfrac{h}{\sqrt{2}}=\dfrac{12}{\sqrt{2}}$