Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Geometry - Summer Assignment

Multiple Choice
Identify the choice that best completes the statement or answers the question.
Show all work; attach extra paper if necessary.

Simplify:

1. $3 + 3(3 + 4)^3$
   a. 1032
   b. 9264
   c. 2058
   d. 91

2. Evaluate $\frac{qr}{q+r}$ when $q = 8$ and $r = 13$.
   a. 1
   b. $\frac{104}{21}$
   c. $\frac{813}{21}$
   d. $\frac{39}{7}$

3. Simplify $7 \times 7 + 15 - 6 \div 2$.
   a. 50
   b. 61
   c. 53.5
   d. 29

4. Evaluate the expression $n \times 3 + 27 \div 3$, given $n = 3$.
   a. 12
   b. 36
   c. 18
   d. 30

5. Simplify $\left(5^3 \times 6^2 - 5^3 \times 3^2\right) \div (3+2)^3$.
   a. 171
   b. 279
   c. 27
   d. 135

6. Simplify $\left(7 \cdot 6^2 - 7 \cdot 3^2\right) \div (4 + 3)$.
   a. 27
   b. 243
   c. 189
   d. 261

Use the distributive property to write an equivalent expression.

7. $5(9x - 5y)$
   a. $45x - 25y$
   b. $45x + 25y$
   c. $45x - 5y$
   d. $9x - 5y$

8. Simplify the expression $8x + 4 + 2x - 7$.
   a. $10x - 3$
   b. $6x - 3$
   c. $10x + 11$
   d. $6x + 11$

9. Bill wants to simplify the following expression.
$5(3x-2y)+2(x+2y)-3(3x-2y)$
Which of the following expressions is equivalent to the expression above?
a. $8x$
b. $8x-12y$
c. $8xy$
d. $8x-8y$

Simplify:

10. $\sqrt{25}$
a. 5
b. 25
c. $\sqrt{5}$
d. 50

Estimate the square root to the nearest integer.

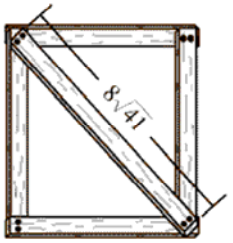
11. $\sqrt{7}$
a. 3
b. –3
c. 49
d. –49

12. Which of the following is an irrational number?
a. $-\sqrt{5}$
b. $\frac{1}{8}$
c. 0.3858585...
d. $-\sqrt{64}$

Order the numbers from least to greatest.

13. $3.\bar{6}, \frac{9}{2}, \sqrt{13}, 3\frac{1}{2}, \sqrt{\frac{9}{4}}$
a. $\sqrt{\frac{9}{4}},\ \sqrt{13},\ 3\frac{1}{2},\ 3.\bar{6},\ \frac{9}{2}$
b. $3.\bar{6}, \sqrt{\frac{9}{4}}, \sqrt{13}, 3\frac{1}{2}, \frac{9}{2}$
c. $\sqrt{\frac{9}{4}},\ 3\frac{1}{2},\ \sqrt{13},\ 3.\bar{6},\ \frac{9}{2}$
d. $\sqrt{\frac{9}{4}},\ 3\frac{1}{2},\ 3.\bar{6},\ \sqrt{13},\ \frac{9}{2}$

14. A gardener building a wooden garden gate wants to brace it as shown in the picture below. The gardener used the Pythagorean theorem to determine that the brace must be $8\sqrt{41}$ inches long.



Which of the following numbers is closest to $8\sqrt{41}$?
a. 48
b. 320
c. 56
d. 51

Solve the equation.

15. $-3x + 25 + x + 21 = 2$
    a. 22
    b. –3
    c. –22
    d. 3

16. $8x - 9 = x + 9$
    a. $\frac{18}{7}$
    b. $-\frac{18}{7}$
    c. $\frac{7}{18}$
    d. $\frac{1}{8}$

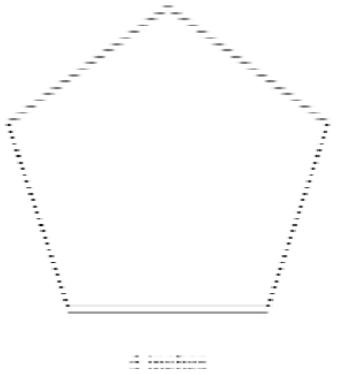
17. $\frac{y}{2} = \frac{6}{24}$
    a. 2
    b. $\frac{1}{4}$
    c. $\frac{1}{2}$
    d. 12

18. The perimeter of a rectangular garden is 690 ft. The two long sides of the garden are each 270 ft long. You are asked to find the length of the other sides. Which equation models this situation?
    a. $270 + 2x = 690$
    b. $2(270) + 2x = 690$
    c. $270 + x = 690$
    d. $270(x - 2) = 690$

19. If $9 = 3(x + 1)$, then $x + 1 =$ ____.
    a. 3
    b. 2
    c. $2\frac{2}{3}$
    d. 12

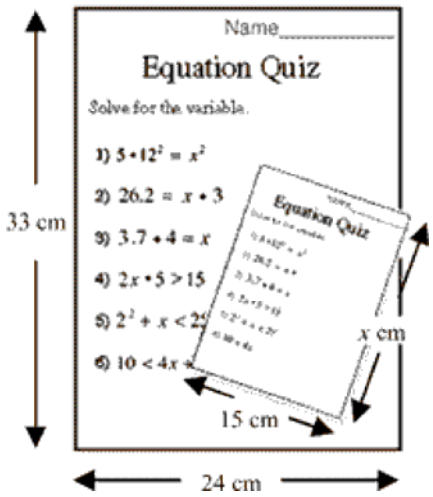
20. In 2 hours a candymaker can produce 80 boxes that each contain 10 pieces of candy. How many pieces of candy does the candymaker produce in 6 hours?
    a. 480 pieces
    b. 2400 pieces
    c. 4800 pieces
    d. 600 pieces

21. The figure below represents a building in the shape of a pentagon. Using the scale 1 inch = 94 feet, what is the perimeter of the building?



    a. 376 feet
    b. 470 feet
    c. 1880 feet
    d. 1504 feet

22. A photocopier is used to make a similar, reduced copy of a document. The original document is 24 centimeters wide and 33 centimeters tall. The copy is 15 centimeters wide. What is the height of the copy, to the nearest tenth of a centimeter?

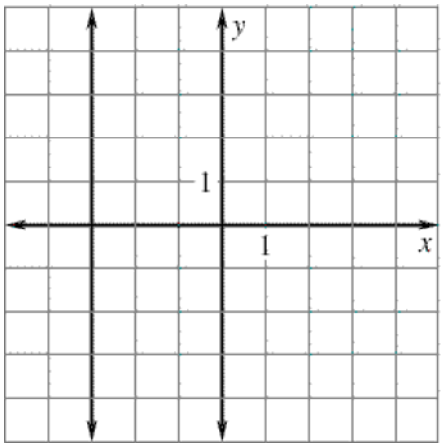


a. 24.0 cm
b. 20.6 cm
c. 21.6 cm
d. 52.8 cm

23. Find the slope of the line passing through the points $A(-1, 1)$ and $B(4, -5)$.

a. $-\frac{6}{5}$
b. $\frac{4}{3}$
c. $\frac{3}{4}$
d. $-\frac{5}{6}$

24. Determine the slope of the line graphed below.

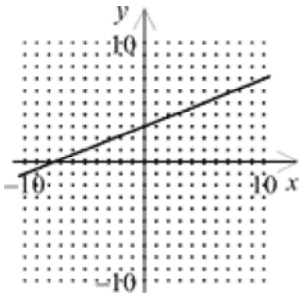


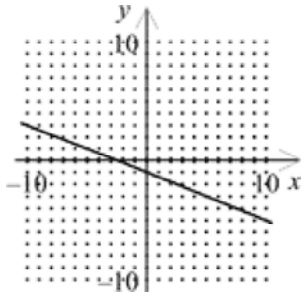
a. 0
b. -3
c. $-\frac{1}{3}$
d. undefined

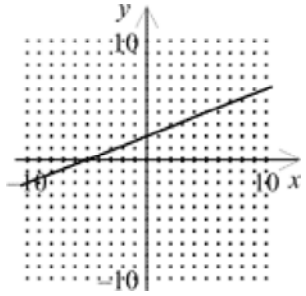
25. Find the slope of the line that contains $(-8, 2)$ and $(7, -4)$.

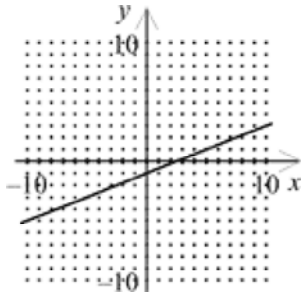
a. $-\frac{2}{5}$
b. $-\frac{5}{2}$
c. 0
d. undefined

26. The equation $y = \frac{2}{5}x + 3$ is graphed below. Which graph shows the result of changing the 3 in the equation to -1?



a.


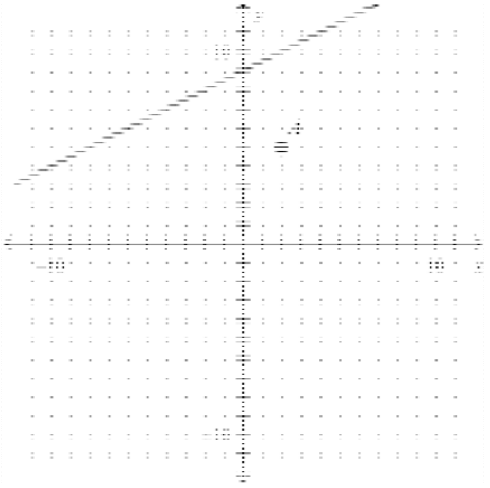
b.


c.


27. Write an equation of the line that passes through $(-5, -1)$ and is parallel to the line $y = 4x - 6$.

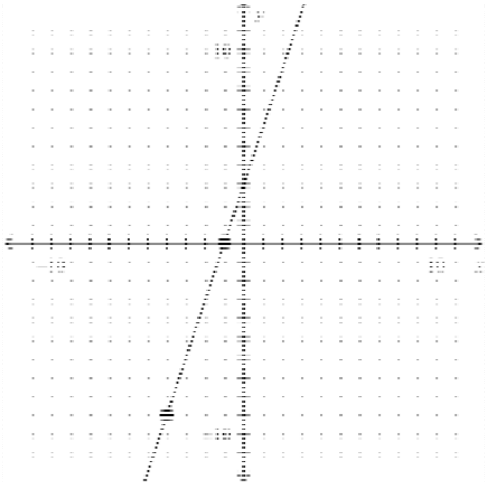
a. $y = 4x + 19$
b. $y = 4x - 6$
c. $y = -5x + 19$
d. $y = -5x - 6$

28. Find the equation of the line that passes through point *A* and is perpendicular to the line shown in the graph below.



a. $y = -2x + 9$
b. $y = \frac{1}{2}x - 9$
c. $y = \frac{1}{2}x + 9$
d. $y = -2x - 9$

29. Which of the following lines is NOT parallel to the line shown in the graph?



a. $3x + y = 3$
b. $y - 3x = 9$
c. $-12x + 4y = 9$
d. $3x - y = 3$

30. Write an equation of the line that goes through the point $(3, 7)$ and is perpendicular to the line $y = -3x + 6$.

a. $y = \frac{1}{3}x + 6$
b. $y = -\frac{1}{3}x + 6$
c. $y = 3x + 2$
d. $y = -3x + 16$

Simplify:

31. $\sqrt{300}$
a. $10\sqrt{30}$
b. $10\sqrt{3}$
c. $\sqrt{30}$
d. $3\sqrt{10}$

Simplify:

32. $\sqrt{10} \cdot \sqrt{4}$
a. $2\sqrt{10}$
b. $4\sqrt{5}$
c. $2\sqrt{5}$
d. $\sqrt{40}$

33. $11\sqrt{25}$
    a. 137.5
    b. 16
    c. 55
    d. 27.5

Simplify:

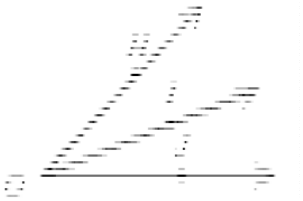
34. $\sqrt{\frac{49}{100}}$
    a. $\frac{7}{50}$
    b. $\frac{3}{4}$
    c. $\frac{7}{100}$
    d. $\frac{7}{10}$

Simplify:

35. $7\sqrt{6}+8\sqrt{6}-3\sqrt{6}$
    a. $\sqrt{72}$
    b. $12\sqrt{6}$
    c. 72
    d. $18\sqrt{6}$

36. Which one of the statements below is *false*?
    a. A circle is NOT a polygon.
    b. An octagon has 8 angles.
    c. A decagon has 10 sides.
    d. A pentagon has 9 angles.

37. If $m\angle IOJ = 22°$ and $m\angle HOI = 25°$, then what is the measure of $\angle HOJ$?

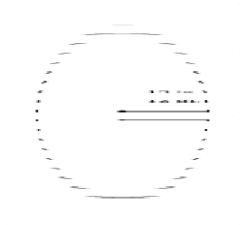


    a. 45°
    b. 44°
    c. 52°
    d. 47°

38. If angle *ROS* is obtuse and angle *TOR* is straight, then angle *TOS* is what kind of angle?

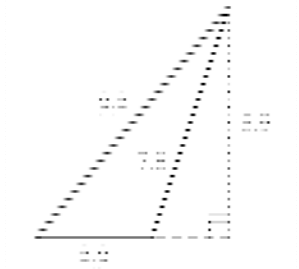
    a. obtuse
    b. right
    c. straight
    d. acute

39. Find the circumference of the circle. Use $\pi = 3.14$.



a. 17.72 in.
b. 150.72 in.
c. 452.16 in.
d. 75.36 in.

40. Find the area. All lengths are in centimeters.



a. $17.11\ \text{cm}^2$
b. $11.31\ \text{cm}^2$
c. $8.555\ \text{cm}^2$
d. $19.9\ \text{cm}^2$

41. Which of the numbers 6, 7, or 8 is the solution of $109 = 116 - x$?
a. not given
b. 6
c. 7
d. 8

42. The cost of renting a canoe is $5.25, plus $0.50 per hour for the time that the canoe is out. Which equation could be used to find *C*, the cost in dollars for using the canoe for *H* hours?
a. $C = 5.25 + 0.50H$
b. $C = (5.25 + 0.50)H$
c. $C = 5.25 \times 0.50H$
d. $C + 0.50H = 5.25$

43. A grocery clerk sets up a display of 12-pack cartons of cola. There are 25 cartons at the base of the triangle and one at the top.

How many cartons of cola are needed for the complete display?
a. 15
b. 325
c. 30
d. 300

Name: _____ **ID: A**

44. Make an input-output table for the function $y = 2x + 4$. Use x-values of 1, 2, 3, 4, and 5.

a.

Input, x	1	2	3	4	5
Output, y	6	8	10	12	14

b.

Input, x	1	2	3	4	5
Output, y	5	7	9	11	13

c.

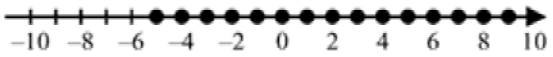
Input, x	1	2	3	4	5
Output, y	6	16	36	76	156

d.

Input, x	1	2	3	4	5
Output, y	5	6	7	8	9

45. Evaluate the expression $-|-12|$.
a. -12
b. 11
c. -11
d. 12

46. Select the description that matches the graph.



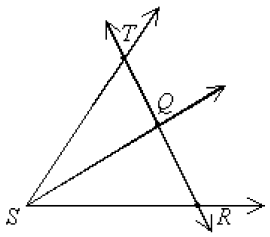
a. integers greater than or equal to –5
b. integers less than or equal to –6
c. integers less than or equal to –7
d. integers greater than or equal to –6

47. Use the concept of opposites to simplify $-\{-[-(+7)]\}$.
a. –7
b. $\frac{1}{7}$
c. 7
d. $-\frac{1}{7}$

48. Which of the following illustrates the associative property of addition?
a. $7 + (2 + 3) = 7 + (2 + 3)$
b. $(11 + 12) + 3 = 11 + (12 + 3)$
c. $2 + 4 = 4 + 2$
d. $6 + 3 = 9 + 0$

49. On Monday, Kevin wrote a check for $575 to pay his rent. On Tuesday, he deposited a tax refund check for $638. On Friday, he wrote checks for $75 for groceries and $266 for a car repair. Which integer represents the overall change in his checking account balance for the week, in dollars?
a. –278
b. –916
c. –1554
d. –178

50. Name three points that are collinear.



a. points *T*, *Q*, and *R*
b. points *T*, *Q*, and *S*
c. points *S*, *Q*, and *R*
d. points *T*, *S*, and *R*

51. If *RS* = 44 and *QS* = 68, find *QR*.

a. 14 b. 44 c. 112 d. 24

52. Find the distance between the points (1, 4) and (–2, –1).
a. $\sqrt{10}$
b. 10
c. 34
d. $\sqrt{34}$

53. Which angle measures approximately 72°?

a.

b.

c.

d.

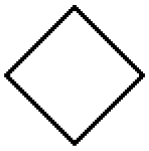
54. Which figure below is *not* a polygon?

a.

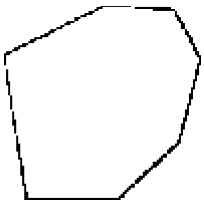
b.

c.

d.



55. The figure below is an example of a(n) _____.

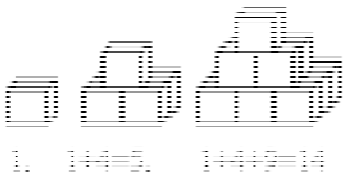


a. nonagon
b. octagon
c. hexagon
d. heptagon

56. Name a polygon with 6 sides.
    a. pentagon
    b. octagon
    c. quadrilateral
    d. hexagon

57. A wooden fence is to be built around a 50 m-by-62 m lot. How many meters of fencing will be needed? If the wood for the fence costs $47.75 per meter, what will the wood for the fence cost?
    a. 3100 m, $148,025.00
    b. 3100 m, $10,696.00
    c. 224 m, $10,696.00
    d. 224 m, $148,025.00

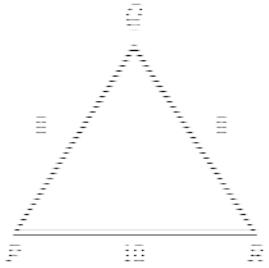
58. If the pattern indicated below is continued, what would be the total number of cubes in the 8th stage of the pattern?



    a. 204
    b. 194
    c. 81
    d. 9

59. Goldbach's conjecture states: every even number greater than 2 can be written as the sum of two prime numbers. Which sum for 30 supports this conjecture?
    a. 15+15
    b. 12+18
    c. 17+13
    d. 2+28

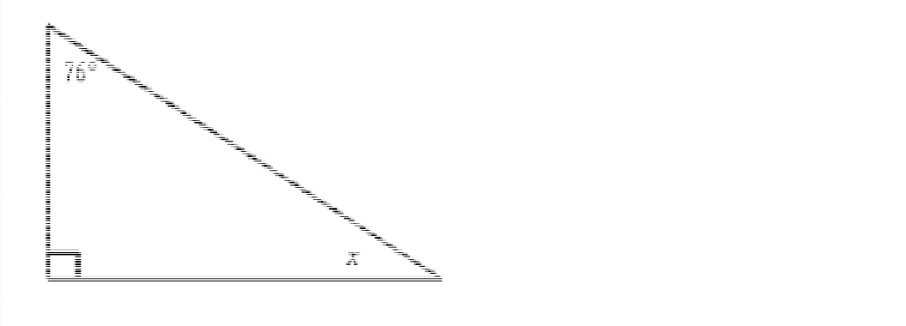
60. Classify ΔPQR.



    a. none of these
    b. Isosceles
    c. Scalene
    d. Equilateral

61. How many obtuse angles can an isosceles triangle have?
    a. 2
    b. 3
    c. 0
    d. 1

62. Find the value of *x*.



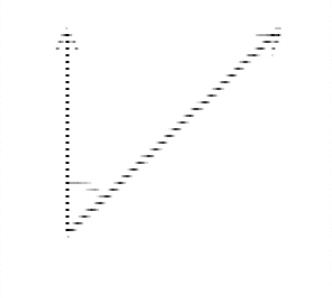
a. 14° b. 166° c. 104° d. 28°

Short Answer

63. Draw a 55° angle using a protractor.

.

64. Classify the angle as right, acute, or obtuse.



65. The measure of angle *A* is 98°. Classify angle *A* as an acute, right, or obtuse angle.

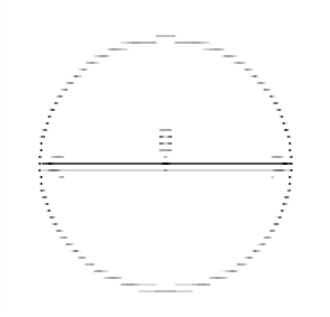
Use the formula for the area of a triangle ($A = \frac{1}{2}bh$) to find the value of the unknown variable.

66. $A = 40\,\text{m}^2$, $b =$ _____, $h = 10\,\text{m}$

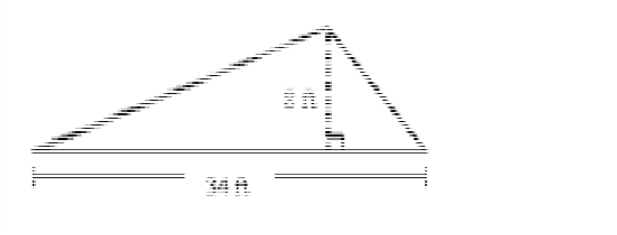
67. Find the perimeter and area of a rectangle with length 150 ft and width 15 ft.

68. Find the area of a circle with radius 23 cm. Use 3.14 for π.

69. Find the area and circumference of the circle. Use $\pi = 3.14$.



70. Find the area:

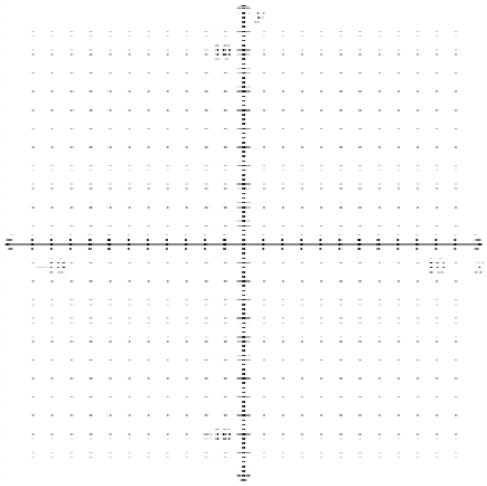


71. A can of paint will cover 70 square feet. How many cans of paint are needed to paint a wall 5 feet high and 98 feet long?

72. Complete the table. Then graph the function.

$y = \frac{7}{8}x - 1$

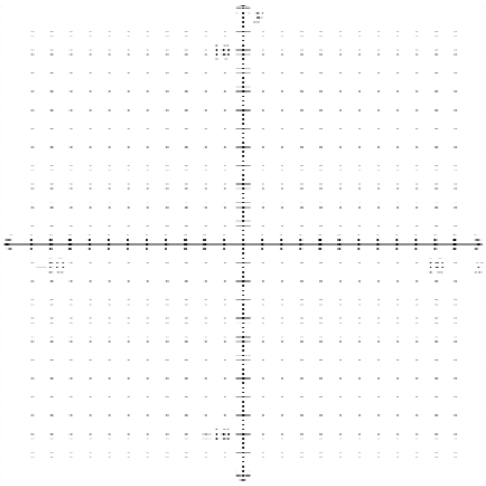
x	–3	–2	0	2	3
y	?	?	?	?	?



73. Complete the table. Then graph the function.

$y = \frac{2}{3}x - 2$

x	–3	–2	0	2	3
y	?	?	?	?	?



Essay

74. Open-ended Problem: Sketch each triangle if possible, and label its important features. If it is not possible to sketch such a triangle, explain why not.
    a. an isosceles equilateral triangle
    b. an isosceles equiangular triangle
    c. an obtuse scalene triangle
    d. an isosceles right triangle