GEOMETRY FORMULAS

Circle: \[ C = 2\pi \cdot r \]  
\[ A = \pi \cdot r^2 \]  
Rectangle: \[ P = 2L + 2W \]  
\[ A = L \cdot W \]  
Triangle: \[ A = \frac{1}{2} bh \]  
Rectangular Prism: \[ V = L \cdot W \cdot H \]  
Cylinder: \[ V = \pi \cdot r^2h \]  
Cone: \[ V = \frac{1}{3} \pi \cdot r^2h \]  
Sphere: \[ V = \frac{4}{3} \pi \cdot r^3 \]

1. Add and reduce, if possible: \[ \frac{4}{9} + \frac{2}{9} \]

2. Find the value of the following if \( x = -1 \) and \( y = -3 \): \[ \frac{2x - 4y}{x^2 + y} \]

3. Solve for \( x \): \[ 3(x - 5) = x - 1 \]

4. Convert to a mixed number: \[ \frac{49}{5} \]

5. Round 2.9856 to the nearest 100th.

6. Convert \( \frac{3}{5} \) to a percent.

7. The ratio of males to females in a Math 092 class is 2:3. How many males are there in a class with 24 females?

8. Ken has $124.81 in his checking account. If he writes checks for $35.49 and $24.53, how much will he have left in his account?

9. Subtract and reduce: if possible: \[ \frac{4}{5} - \frac{2}{3} \]

10. Find the perimeter and the area of the rectangle below.

\[
\begin{array}{c}
2 \text{ inches} \\
3.5 \text{ inches}
\end{array}
\]

11. Multiply: \[ 4 \frac{7}{8} \cdot 2 \frac{1}{3} \]

12. Convert to a fraction and reduce to lowest terms: 0.002
13. Simplify: \((x^4 y^{-2})^4\)

14. Divide: \(10.29 \div 4.9\)

15. Convert to a fraction and reduce to lowest terms: \(90\%\)

16. Simplify: \(x^5 \cdot x^4\)

17. Answer TRUE or FALSE (explain your answer!): \(\frac{0}{3} = \frac{3}{0}\)

18. Answer TRUE or FALSE (explain your answer!): \(\frac{1}{3} = .3\)

19. Find the missing side of the triangle below.

![Triangle Diagram]

20. Fill in the blank with < or >: \(-2 \_ \_ \_ \_ \_ -5\)

21. Fill in the blank with < or >: \(\frac{4}{5} \_ \_ \_ \_ \_ \frac{7}{10}\)

22. Find the circumference of a circle with diameter 6 inches. (Leave your answer in terms of \(\pi\))

23. Add: \(29.843 + 12 + 3.45\)

24. A compact disc is originally priced at $16. If it goes on sale for 40% off, find the sale price.

25. Find the volume of the figure below.

![Cube Diagram]

26. Find the volume of the figure below. (Leave your answer in terms of \(\pi\))

![Cylinder Diagram]

27. On a recent math test, Clementine answered \(\frac{7}{8}\) of the questions correctly. If there were 40 questions on the test, how many did she get right?
Questions 28, 29, and 30 refer to the following data: 10, 6, 3, 2, 3, 10, 18, 20

28. Find the mean.
29. Find the median.
30. Find the mode(s).

31. Factor: $12x - 8y + 16z$
32. Find the supplement of $39^\circ$.

33. Convert to a decimal: $\frac{3}{8}$
34. 3 is 15% of what number?

35. Write in words: 12.3
36. Divide and reduce, if possible: $35 \div \frac{5}{7}$
37. Multiply: $4 \cdot (-3)$
38. Subtract: $-8 - (-6)$

39. Simplify using order of operations: $(-5)^2 + 2 \cdot (-4 - 1)$
40. Find the area of the triangle below.

```
     ______
  8.6|       |
  2.5|       |
16  |_______|
```

41. Write as a ratio in lowest terms: 24 cats to 42 dogs
42. Write in order from smallest to largest: $\frac{1}{5}, 0.02, 0.3, \frac{1}{4}$
43. Simplify using order of operations: $\frac{2}{3} - \left(\frac{4}{5} + \frac{7}{10}\right) \div \frac{6}{5}$
44. Simplify: $(3a + 4b) - (6a - b)$
45. Convert to a percent: 0.2

46. Convert to an improper fraction: $2\frac{3}{7}$
47. Solve for $x$: $\frac{2}{6} = \frac{7}{x}$
48. One year ago, a new Playstation2 cost $250. Today they are priced at $150. Find the percent decrease.

49. Divide: $-84 \div (-7)$
50. Solve for $x$: $\frac{2}{3}x = 16$
ANSWERS

1. \( \frac{2}{3} \)  
2. \(-5\)  
3. \(x = 7\)  
4. \(9\frac{4}{5}\)

5. \(2.99\)  
6. \(60\%\)  
7. \(16\)  
8. \($64.79\)

9. \(\frac{2}{15}\)  
10. \(P = 11, A = 7\)  
11. \(\frac{91}{8}\)  
12. \(\frac{1}{500}\)

13. \(\frac{x^{16}}{y^8}\)  
14. \(2.1\)  
15. \(\frac{9}{10}\)  
16. \(x^9\)

17. FALSE  
18. FALSE  
19. \(6\)  
20. \(>\)

21. \(>\)  
22. \(6\pi\)  
23. \(45.293\)  
24. \($9.60\)

25. \(40\ \text{ft}^3\)  
26. \(192\pi\)  
27. \(35\)  
28. \(9\)

29. \(8\)  
30. \(3\ and\ 10\)  
31. \(4(3x-2y+4z)\)  
32. \(141°\)

33. \(.375\)  
34. \(20\)  
35. twelve and three tenths

36. \(49\)  
37. \(-12\)  
38. \(-2\)  
39. \(15\)

40. \(32\)  
41. \(\frac{4}{7}\)  
42. \(.02, \frac{1}{5}, \frac{1}{4}, .3\)  
43. \(-\frac{7}{12}\)

44. \(-3a + 5b\)  
45. \(20\%\)  
46. \(\frac{17}{7}\)  
47. \(x = 21\)

48. \(40\%\)  
49. \(12\)  
50. \(x = 24\)