

MARIAN CATHOLIC HIGH SCHOOL

College Algebra Readiness

Summer Math Problems

NAME _____

Date _____

Simplify each expression.

1. $16 + 4 \cdot 2 - 3(2)$

2. $15(4) \div |2 - 24|$

3. $9 + 6(-6 + 10) \div 3$

Evaluate each expression if $a = 3$, $b = -1$, $c = 2$.

4. $3a - 2 + 4b + c$

5. $4a \div c - b$

Solve each equation:

6. $3.2m = 16$

7. $3 - (2t + 5) = -12$

8. $5a - 15 + 9a = 3a + 29$

9. $-\frac{1}{2}x = \frac{1}{4}$

10. $-7 = \frac{1}{4}b + 3$

Solve:

11. The difference between 1.6 times a number and 21 is 27. What is the number?

12. Find the slope of the line through (-4, 2) and (5, 8).

13. A fence along a schoolyard is 250 feet long. There is a fence post every 10 feet. How many fence posts are there?

14. Find the length of AB, given A(5, -2) and B(-3, -4).

Simplify:

15. $3(16 \div 8) - 9 \div 3$

16. $3x - 3y - 9x + 7y$

17. $-30x - (-1x)$

18. $3(a + 2b) + (b + 2a)$

19. $6(x - y) - (3x - y)$

Graph on the number line:

20. $x \geq 3$

21. $-4 < x < 4$

22. If y varies directly as x , when $y = 6$ and $x = 2$; find y when $x = 12$.

23. If y varies inversely as x , when $y = 3$ and $x = 4$, find x when $y = 16$.

24. Solve $A = 4\pi r^2$ for r . Round to the nearest tenth place.

Graph the following:

25. $y = \frac{1}{2}x + 3$

26. $2x - 3y = 6$

27. In what quadrant is the point $(-1, -3)$? _____

28. Simplify each expression. Round to the nearest tenth where necessary.

$\sqrt{0.36}$

$\sqrt{664}$

$\sqrt{2500}$

$\sqrt{250}$

29. A pigeon leaves its nest and flies 5 km due east. The pigeon then flies 3 km due north. How far is the pigeon from its nest?

30. Define the following and the find each for the following data:

23 27 35 27 21 45 23

Find the mode.

Find the median.

Find the mean.

31. Solve for the following, given the function: $f(x) = x^2 - 2x$

$f(-2)$

$f(0)$

$f(12)$

32. When food (at room temperature) is placed in a refrigerator, the time required for the food to cool depends on the amount of food, the air circulation in the refrigerator, the original temperature of the food, and the temperature of the refrigerator. Consider the model that gives the temperature of food that is a 75°F and is placed in a 40°F refrigerator as

$$T = 10 \left(\frac{4t^2 + 16t + 75}{t^2 + 4t + 10} \right),$$

where T is the temperature (in degrees Fahrenheit)
and t is the time (in hours).

a) Complete the table.

t	0	2	4	6	8	10	12	14	16
T									

b) What value of T does the mathematical model appear to be approaching?