

## ALGEBRA 1 SUMMER REVIEW

Dear students,

To prepare you for next year's Algebra 1 class, the Math Department requires that you complete a summer review assignment. This review will refresh your skills and prepare you for our Algebra 1 course.

Solve each problem, **showing all your work**. You are expected to spend a minimum of 2 hours on this assignment, but it may require as many as 4 hours if you are not familiar with the material. ALL problems need to be done with all work shown, neat, and stapled. You may print out the summer review and complete the problems on the document itself, or complete the problems on binder paper. The completed assignment is due the first day of class. We will quickly review the assignment on that day, so bring any questions you may have to the first class. We will be having an assessment on this material in the second class, so I would encourage you to review your work the day before classes start to have it fresh in your mind if you completed the assignment early in the summer. All problems on this review should be material that you have already mastered. If there is anything that does not look familiar, please make sure you get the proper help during the summer.

A great resource to help you with any concepts you may be struggling with is Khan Academy.

If you have any questions, you may reach out to the Math Department Chair, Ms. Brand, at: **cbrand@moreaucatholic.org**

See you in August!

## ALGEBRA 1 SUMMER REVIEW

Name: \_\_\_\_\_

**Follow the directions for each question and box your final answer.**

Simplify. Use Order of Operations.

1)  $13 + 54 \div 9$

2)  $12 + 3 - 7 \cdot 2 + 8$

3)  $32 \div 8 + 4 \cdot 3$

Evaluate the expression.

4)  $\frac{a+3b}{5}$  for  $a = 4$  and  $b = 2$

5)  $\frac{3x}{2y+1}$  for  $x = 7$  and  $y = 3$

Simplify.

6)  $\frac{51d}{17sd}$

7)  $\frac{13rv}{3vh}$

8)  $\frac{32prq}{4qrp}$

9)  $\frac{36 \cdot 2rh}{3 \cdot (9hg)}$

Evaluate each expression.

10)  $x^3 + 2$  for  $x = 4$

11)  $3m^3$  for  $m = 1$

12)  $2n^4$  for  $n = 2$

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13)  $(2a)^4$  for  $a = 3$

14)  $(6y)^4$  for  $y = 2$

15)  $5x^2 - 4$  for  $x = 4$

16)  $(5y)^3 - 75$  for  $y = 2$

17)  $3(a+10)$  for  $a = 12$

18)  $(t+3)^3$  for  $t = 4$

19)  $(x+5)(12-x)$  for  $x = 7$

20)  $\frac{y+3}{2y}$  for  $y = 5$

21)  $\frac{w^2+4}{5w}$  for  $w = 4$

Solve the word problem.

22) A rocket is divided into 3 sections: the cargo and navigation section at the top, the fuel tank in the middle, and the booster rocket at the bottom. The cargo and navigation section is one-sixth as long as the booster rocket. The booster rocket is one-half the total length of the rocket. The total length of the rocket is 180 ft. How long is each section?

23) Find the perimeter ( $p$ ) of an ice skating rink with a length ( $l$ ) of 66 yd and width ( $w$ ) of 99 ft using the formula:  $p = 2(l + w)$ .

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24) Find the amount of simple interest ( $I$ ) paid on a principle amount ( $p$ ) of \$2,000 at a rate ( $r$ ) of 0.15 (15% interest rate) for a term ( $t$ ) of 3 years using the formula:  $I = prt$ .

Multiply:

$$25) -4(x - 3y - 2z)$$

$$26) 3.1(-1.2x + 3.2y - 1.1)$$

$$27) \frac{2}{3}(3a - 6b + 9)$$

$$28) -\frac{4}{5}\left(-\frac{1}{2}x + \frac{2}{3}y - 1\right)$$

Simplify.

$$29) 2x - 4y - 3(7x - 2y)$$

$$30) 15x - y - 5(3x - 2y + 5z)$$

$$31) (3x + 2y) - (5x - 4y)$$

$$32) 6m - n - 4m - (5n - m)$$

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$$33) -(7x-8y)-(8y-7x)$$

$$34) [10(x+3)-4]+[2(x-1)+6]$$

$$35) [7(x+5)-19]-[4(x-6)+10]$$

$$36) [3(x-2)-10]-[6(x+1)-20]$$

Write these rational numbers in order from least to greatest.

$$37) \frac{3}{8}, \frac{7}{8}, \frac{1}{8}, -\frac{4}{8}, \frac{5}{8}, -\frac{8}{8}$$

$$38) \frac{4}{5}, \frac{4}{3}, \frac{4}{8}, \frac{4}{6}, \frac{4}{9}, \frac{4}{2}$$

$$39) -\frac{2}{3}, \frac{1}{2}, -\frac{3}{4}, -\frac{5}{6}, \frac{3}{8}, \frac{1}{6}$$

Add without using a number line.

$$40) -\frac{5}{6} + \frac{2}{3}$$

$$41) -\frac{5}{8} + \left(-\frac{1}{3}\right)$$

$$42) -\frac{5}{9} + \left(-\frac{1}{18}\right)$$

$$43) \frac{-3}{12} + \frac{3}{18} + \frac{-7}{6} + 2$$

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Subtract.

$$44) \frac{1}{6} - \frac{2}{3}$$

$$45) \frac{12}{5} - \frac{12}{5}$$

$$46) \frac{-7}{10} - \frac{10}{15}$$

$$47) \frac{1}{13} - \frac{1}{12}$$

Simplify.

$$48) -34 - 28 + (-33) - 44$$

$$49) 84 + (-99) + 44 - (-18) - 43$$

$$50) 14 + (-5x) + 2x - (-32)$$

$$51) 8x - (-2x) - 14 - (-5x) + 53$$

$$52) -6[(-5) + (-7)]$$

$$53) -3[(-8) + (-6)]\left(-\frac{1}{9}\right)$$

$$54) -(3^5) \cdot [-(2^3)]$$

$$55) (-2)^5$$

Evaluate for  $x = -2$ ,  $y = -4$ , and  $z = 5$ .

$$56) xy + z$$

$$57) -6(3x - 5y) + z$$

$$58) y(x^4) - z$$

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Divide.

$$59) \frac{7}{8} \div \left(-\frac{1}{2}\right)$$

$$60) \frac{-5}{9} \div \left(\frac{-5}{6}\right)$$

$$61) \frac{-3}{5} \div \left(\frac{-5}{8}\right)$$

$$62) -\frac{1}{3} \div \frac{1}{3}$$

$$63) \frac{-5}{6} \div \frac{3}{4}$$

Simplify.

$$64) \frac{10}{7} \div 1\frac{3}{4}$$

Add or subtract without a calculator.

$$65) 54.623 + 6.702$$

$$66) 17.92 + 8.187$$

$$67) 18.46 - 9.25$$

$$68) 7.014 - 2.36$$