

CP College Algebra



Summer Assignment

Name: _____

Period: __

The purpose of this packet is to both convey to students the foundational skills needed to be successful in this course and to provide them an opportunity to self-assess and develop these skills prior to entering the class. In order to be successful in this and all subsequent math courses at Servite, students must master and retain the content and skills from all previous math courses. As such, we ask that you please work on this assignment with integrity and diligence always striving to meet the intended purpose and goal of this assignment.

Directions: Please print this packet. You **must show all work** in this packet in the space provided. You **may not** use a calculator. For every word problem, write your answer in the form of a sentence. After you make an honest attempt at a problem, check your answer. If your answer is incorrect, try to identify where you went wrong, review the topic, and redo the problem correctly.

This packet will be **collected** on the **second day** of school. You will be given a homework grade for completing this packet. Per Servite School policy, if this packet is not turned in on the second day of school, you will receive half credit if it is turned in the following day. After that, you will receive a zero for this packet. An assessment will be given at the beginning of the school year to make sure you have mastered all prerequisites. This assessment will count as a quiz grade.

Have a great summer and we are looking forward to seeing you in August!

I understand that I have to show all my work and cannot use a calculator.

(Student Signature)

(Date)

I have checked to see that my child have shown all work and completed all problems without the use of a calculator.

(Parent/Guardian Signature)

(Date)

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Make sure to write down the original problem and SHOW ALL YOUR WORK.

1. Simplify by using the order of operations.

$$24 - 33 + 27$$

2. Simplify by using the order of operations.

$$2 + 4 \cdot 7 - 2$$

3. Simplify by using the order of operations.

$$-9 \cdot (8 + 4) + 4 \cdot (7 - 4 \div 2)$$

4. Simplify the following using the order of operations.

$$3x - (-3y) + 9z$$

5. Simplify.

$$\frac{36}{(-5)(18)}$$

6. Expand.

$$-3(6r - 3s)$$

7. Add the fractions and simplify.

$$\frac{9}{2} + \frac{3}{5}$$

8. Subtract the fractions and simplify.

$$\frac{8}{7} - \frac{3}{8}$$

9. Multiply the fractions and reduce to lowest terms.

$$\frac{3}{4} \cdot \frac{1}{9}$$

10. Divide the fractions and reduce to lowest terms.

$$\frac{1}{7} \div \frac{2}{21}$$

11. Approximate the number 2.920776 to three decimal places by rounding.

12. Simplify by using the order of operations.

$$-5 \bullet (-5 + 8) + 6 \bullet (3 - 4 \div 4)$$

13. Subtract the fractions and simplify.

$$\frac{6s}{-5} - \frac{4s}{3}$$

14. Evaluate the algebraic expression for the specified values.

$$\frac{m_1 \cdot m_2}{r^2} \text{ for } m_1 = 6, m_2 = 3, r = 7$$

15. Simplify $r^9 \cdot r^6$ using properties of exponents. Express in terms of positive exponents.

16. Simplify $(3s^2)^4$ using properties of exponents. Express in terms of positive exponents.

17. Simplify $3z^{-5}z^3$

18. Simplify $(5e^{-4}f^9)^{-3}$ using properties of exponents. Express in terms of positive exponents.

19. Simplify $\frac{(6hk)^4}{(-3hk)^5}$

20. Express 82,600,000 in scientific notation.

21. Simplify $2q^{20}q^{-6}$ using properties of exponents. Express in terms of positive exponents.

22. Name the coefficient(s), variable(s), and degree of the monomial $-5x^6$.

23. Determine whether $-7x^9 + 12$ is a polynomial. If it is, state its degree.
24. Subtract the polynomials and express your answer as a single polynomial in standard form,
 $8z^8 - 9(z^8 - 8y + 10)$
25. Add the polynomials and express your answer as a single polynomial in standard form.
 $(-3r^9 - 2sz^7 + 6y + 5) + (-6r^9 - 5sz^7 - 10y + 2)$
26. Subtract the polynomials and express your answer as a single polynomial in standard form.
 $(3q^7 - 9ab^2 + 10x - 3) - (-4q^7 + 7ab^2 - 2x + 7)$
27. Multiply the monomial by the trinomial and express your answer as a single polynomial in standard form.
 $6m^4(4m^6 - 3n^2 - 10)$
28. Multiply the binomial by the trinomial and express your answer as a single polynomial in standard form.
 $(9m - 6)(2m^2 - 7m + 4)$
29. Multiply the binomials using the FOIL method and express your answer as a single polynomial in standard form.
 $(x + 2)(x + 3)$
30. Multiply the binomials using the FOIL method and express your answer as a single polynomial in standard form.
 $(z + 3)(z - 8)$
31. Multiply the binomials using the FOIL method and express your answer as a single polynomial in standard form.
 $(r - 1)(r - 4)$
32. Multiply the binomials using the FOIL method and express your answer as a single polynomial in standard form.
 $(2s + 9)(3s - 10)$

33. Factor the common term out of the polynomial $3x^9 - 12x$.
34. Factor the common term out of the polynomial $4t^{10} + 20t^9 - 12t^8$
35. Factor the polynomial completely
 $x^2 + 3x - 70$
36. Factor the polynomial completely
 $2x^2 + 4x - 6$
37. Factor the binomial completely
 $k^2 - 100$
38. Factor the trinomial completely.
 $x^2 + 2xy - 35y^2$
39. Factor $n^3 - 64$ into a product of a binomial and a trinomial.
40. Factor $u^3 + 8$ into a product of a binomial and a trinomial.
41. Factor $3b^4 - 9b^3 - 30b^2$ into a product of three polynomials.
42. Factor $r^3 - 25r$ into a product of three polynomials.
43. Factor $2m^8 - 6m^7 + 10m - 30$ into a product of two binomials.
44. Reduce the rational expression, if possible.
$$\frac{(r-11)(r+18)}{8(r-11)}$$

45. Reduce the rational expression, if possible.

$$\frac{(3z-6)(4z+2)}{(20z+10)}$$

46. Reduce $\frac{p^2-25}{p+5}$, if possible

47. Multiply the rational expressions and simplify.

$$\frac{2x-2}{6x} \cdot \frac{6x^2+6x}{5x-5}$$

48. Multiply the rational functions and simplify

$$\frac{r^2+9}{r-3} \cdot \frac{9r}{r+7}$$

49. Divide the expressions and simplify.

$$\frac{7}{j} \div \frac{49}{j^2}$$

50. Divide the rational equations and simplify.

$$\frac{4}{a-6} \div \frac{24}{a^2-36}$$

51. Subtract the rational expressions and simplify.

$$\frac{2}{z} - \frac{1}{9z}$$

52. Add the rational expressions and simplify.

$$\frac{11}{s-4} + \frac{2s}{s+1}$$

53. Evaluate the expression or state that it is not a real number.

$$\sqrt[3]{0}$$

54. Simplify $(r^{1/4}s^{1/5})^{20}$

55. Simplify $7\sqrt{7} - 14\sqrt{7}$

56. Simplify $\frac{15}{8\sqrt{2}}$.

57. Simplify $\sqrt{28}\sqrt{64}$

58. Simplify $\frac{5}{2-\sqrt{5}}$

59. Simplify $11\sqrt{15} + 6\sqrt{15}$ if possible.

60. Simplify $\sqrt{-81}$