CHRISTOPHER COLUMBUS

A Marist Brothers High School *1958*

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# Summer Assignment Mathematics
# Precalculus Accelerated
# Due Date: First week of school

***DIRECTIONS:***

This summer packet is for students who are enrolled in precalculus accelerated. The concepts in this summer packet are concepts that you learned in Algebra 2. Therefore, none of the questions in this packet should be unfamiliar to you.

This summer packet is due the first week of school. Your teacher will inform you of the specific due date. Please follow these directions:

1. Print the summer packet and show your work on PAPER. Work done in Notability or any other digital format will NOT be accepted.
2. You must show all your work in order to get full credit.
3. Answers only without showing work will not receive credit.
4. You will get a grade for completing the packet and turning it in by the due date.
5. Your teacher will review the questions on the summer packet and you will be assessed on the same concepts.

Precalculus Accelerated Name_____ ID: 1

# Summer Packet 2026

Date_____ Period____

**You must do all your work on a separate sheet of paper.**
**Simplify. Your answer should contain only positive exponents.**

1) $(x^4y^3)^4$

2) $4x^3y^4 \cdot 3y$

3) $\frac{(a^4b^2)^2}{2a^3b^3}$

4) $\frac{4y^{-3}}{x^{-1}y^2}$

**Simplify each expression.**

5) $(4x^4 - x^3 + 5x) - (7x^4 + 4x + 3x^3)$

6) $(3v^2 - 3v^3 - 5v) + (6v^2 + 4v - 2v^3)$

**Find each product.**

7) $(4x + 5)(6x + 7)$

8) $(2m - 6)(7m^2 + 4m + 6)$

9) $(5n - 2)(5n + 2)$

10) $(5 + a)^2$

**Divide.**

11) $(6r^3 + 47r^2 - 26r + 13) \div (6r - 1)$

12) $(n^3 - 2n^2 - 33n + 13) \div (n + 5)$

**Factor each completely.**

13) $4n^2 + 8n - 12$

14) $3x^2 - 48x + 180$

15) $7x^2 - 52x + 21$

16) $r^2 - 8r + 7$

17) $25k^2 - 9$

18) $9a^2 - 24a + 16$

19) $4m^3 - 32m^2 - m + 8$

20) $126b^3 - 90b^2 + 168b - 120$

**Simplify each expression (factor numerator and denominator then cancel common factors).**

21) $\frac{2n - 8}{7n^2 - 18n - 40}$

22) $\frac{x^2 - x - 6}{x^2 + 3x + 2}$

23) $\dfrac{8n+8}{28n+40}$

24) $\dfrac{10v}{15v^2-5v}$

**Solve each equation by factoring.**

25) $m^2-4m-12=0$

26) $x^2+6x=0$

27) $n^2+4n+4=0$

28) $r^2+2r-24=0$

29) $5a^2+34a-7=0$

30) $21x^2-71x+40=0$

**Solve each equation with the quadratic formula.**

31) $3r^2-75=0$

32) $9b^2+9b-13=0$

**Solve each equation.**

33) $-4.8(m-7.6)=7.67-0.5m$

34) $-3(1+b)+4b=-4b+37$

35) $\dfrac{2}{7}k-\dfrac{17}{2}k=-\dfrac{345}{112}$

36) $-6(k+7)-3k=5+4(-k+2)$

37) $85=-8\left(\dfrac{3}{2}x-\dfrac{13}{8}\right)$

**Solve each equation with the quadratic formula.**

38) $9n^2-5n+2=0$

**Solve each equation by taking square roots.**

39) $-2x^2=-200$

**Solve each equation by completing the square.**

40) $x^2 - 12x - 60 = 0$

**Solve each equation with the quadratic formula.**

41) $6a^2 = 143 - 7a$

**Find all roots. Solve by factoring.**

42) $x^3 - x^2 - x + 1 = 0$

43) $x^3 + 2x^2 - 4x - 8 = 0$

**Solve each equation. Remember to check for extraneous solutions.**

44) $8 + \sqrt{82v - 1} = 17$

**Write the slope-intercept form of the equation of the line through the given points.**

45) through: $(0, -3)$ and $(-5, -4)$

**Write the slope-intercept form of the equation of each line.**

46) $x - 7y = 35$

**Solve each system by elimination.**

47) $-5x - 3y = -9$
$5x + 7y = -19$

**Solve each system by substitution.**

48) $y = -3x + 17$
$-5x - 4y = -12$

49) Wilbur's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 14 adult tickets and 2 student tickets for a total of \$156. The school took in \$153 on the second day by selling 7 adult tickets and 6 student tickets. What is the price each of one adult ticket and one student ticket?

**Sketch the graph of each function.**

50) $y = -x^2 + 6x - 7$