SAINT DOMINIC ACADEMY
MATHEMATICS DEPARTMENT

ENTERING ALGEBRA II

2023 SUMMER PACKET

DUE ON THE FIRST DAY OF SCHOOL

DIRECTIONS

SHOW YOUR WORK! Show all necessary and complete work in PENCIL.
Write legibly and as neatly as possible.

Cheating is prohibited.

CALCULATOR IS NOT ALLOWED

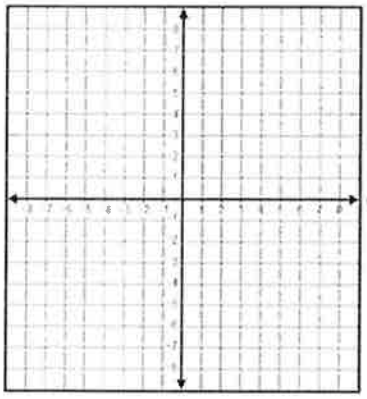
Name: _____ Signature: _____

NAME: _____

Instructions: Write your responses to your questions on this response page. Also, attach ALL of your work. FULL CREDIT WILL NOT BE GIVEN UNLESS YOUR WORK IS ATTACHED.

1.	**9.**	**17.**
2.	**10.**	**18.**
3.	**11.**	**19.**
4.	**12.**	**20.**
5.	**13.**	**21.**
6.	**14.**	**22.**
7.	**15.**	**23.**
8.	**16.**	

24.



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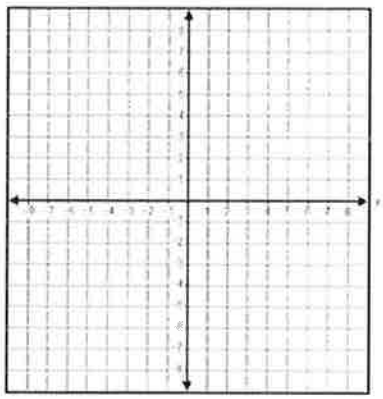

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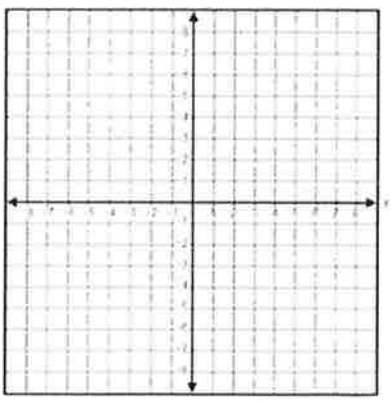


27.	**38.**
28.	**39.**
29.	**40.**
30.	**41.**
31. X = _____ Y = _____	**42.**
32. X = _____ Y = _____	**43.**
33. a = _____ b = _____ c = _____	**44.**
34. a. x – intercept: _____ y – intercept: _____ b. domain: _____ range: _____	**45.**
35.	**46.**
36.	**47.**
37.	**48.**

PRACTICE

MyMathLab®

Evaluate.

1. -3^4
2. 4^{-3}
3. $6[5 + 2(3 - 8) - 3]$

Perform the indicated operations and simplify if possible.

4. $5x^3 + x^2 + 5x - 2 - (8x^3 - 4x^2 + x - 7)$
5. $(4x - 2)^2$
6. $(3x + 7)(x^2 + 5x + 2)$

Factor.

7. $y^2 - 8y - 48$
8. $9x^3 + 39x^2 + 12x$
9. $180 - 5x^2$
10. $3a^2 + 3ab - 7a - 7b$
11. $8y^3 - 64$

Simplify. Write answers with positive exponents only.

12. $\left(\dfrac{x^2y^3}{x^3y^{-4}}\right)^2$
13. $\dfrac{5 - \dfrac{1}{y^2}}{\dfrac{1}{y} + \dfrac{2}{y^2}}$

Perform the indicated operations and simplify if possible.

14. $\dfrac{x^2 - 9}{x^2 - 3x} \div \dfrac{xy + 5x + 3y + 15}{2x + 10}$
15. $\dfrac{5a}{a^2 - a - 6} - \dfrac{2}{a - 3}$

Solve each equation or inequality.

16. $4(n - 5) = -(4 - 2n)$
17. $x(x + 6) = 7$
18. $3x - 5 \geq 7x + 3$
19. $2x^2 - 6x + 1 = 0$
20. $\dfrac{4}{y} - \dfrac{5}{3} = -\dfrac{1}{5}$
21. $\dfrac{5}{y + 1} = \dfrac{4}{y + 2}$
22. $\dfrac{a}{a - 3} = \dfrac{3}{a - 3} - \dfrac{3}{2}$
23. $\sqrt{2x - 2} = x - 5$

Graph the following.

24. $5x - 7y = 10$
25. $x - 3 = 0$
26. $y > -4x$

Find the slope of each line.

27. through $(6, -5)$ and $(-1, 2)$
28. $-3x + y = 5$

Write equations of the following lines. Write each equation in standard form.

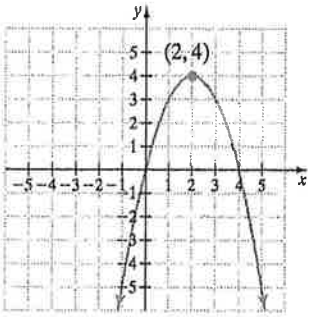
29. through $(2, -5)$ and $(1, 3)$
30. through $(-5, -1)$ and parallel to $x = 7$

Solve each system of equations.

31. $\begin{cases} 3x - 2y = -14 \\ y = x + 5 \end{cases}$
32. $\begin{cases} 4x - 6y = 7 \\ -2x + 3y = 0 \end{cases}$

Answer the questions about functions.

33. If $h(x) = x^3 - x$, find
    a. $h(-1)$ b. $h(0)$ c. $h(4)$
34. a. Identify the x- and y-intercepts.
    b. Find the domain and range of the function graphed.



Evaluate.

35. $\sqrt{16}$
36. $27^{-2/3}$
37. $\left(\dfrac{9}{16}\right)^{1/2}$

Simplify.

38. $\sqrt{54}$

39. $\sqrt{9x^9}$

Perform the indicated operations and simplify if possible.

40. $\sqrt{12} - 2\sqrt{75}$

41. $\dfrac{\sqrt{40x^4}}{\sqrt{2x}}$

42. $\sqrt{2}\,(\sqrt{6} - \sqrt{5})$

Rationalize each denominator.

43. $\sqrt{\dfrac{5}{12x^2}}$

44. $\dfrac{2\sqrt{3}}{\sqrt{3} - 3}$

Solve each application.

45. One number plus five times its reciprocal is equal to six. Find the number.

46. Some states have a single area code for the entire state. Two such states have area codes where one is double the other. If the sum of these integers is 1203, find the two area codes.

47. Two trains leave Los Angeles simultaneously traveling on the same track in opposite directions at speeds of 50 and 64 mph. How long will it take before they are 285 miles apart?

48. Find the amount of a 12% saline solution a lab assistant should add to 80 cc (cubic centimeters) of a 22% saline solution in order to have a 16% solution.