

Name _____

Summer Mathematics Assignment
Algebra 2 Basics

1. This is your summer assignment if you are taking Algebra 2 Basics during the 2010-2011 school year.

2. A. Do all of your work in the space provided. If you need additional space to complete a solution you may use an additional sheet. Be sure to write the **number** of the problem on that paper.

B. Hand in this packet and any additional sheets to your teacher at our first class session.

3. This assignment will count as a 40 point quiz. For each day late, you will lose 2 points from the quiz grade.

4. For 11th graders going to MUSS: hand in your work to Mrs. Gefer in the math office BEFORE you leave for Israel.

Evaluate the expression for the given values of the variables.

1. $3x - 5$ when $x = -3$

2. $x^3 - 4x^2 + x$ when $x = -2$

Solve the equation.

3. $4x + 8 = 32$

4. $m - 15 = 3m + 4$

5. $4(3x - 5) = x + 3$

6. $\frac{1}{2}x + \frac{3}{4} = \frac{3}{2}x - \frac{29}{4}$

Solve the inequality. Then graph the solution.

7. $2x + 5 \geq 9$

8. $4x + 2 > 8$ or $4x + 2 < -10$

9. $-5 < 3x + 1 < 10$

Graph the equation using standard form. Label any intercepts.

10. $3x + y = 8$

11. $4x + 3y = 12$

12. $y = 8$

13. $x = 6$

Write an equation of a line using the given information.

14. The line passes through the point $(0, 5)$ and has a slope of 3.

15. The line passes through the point $(2, -4)$ and has a slope of $\frac{2}{5}$.

16. The line has a slope of $-\frac{3}{4}$ and a y-intercept of 5.

17. The line passes through the point $(2, 4)$ and is parallel to $x = 7$.

18. The line passes through the point $(2, -1)$ and is perpendicular to the line $y = \frac{2}{3}x + 5$.

19. The line passes through the point $(-4, 5)$ and is parallel to the line $y = -\frac{2}{3}x + 7$.

Evaluate the function for the given value of x .

$$f(x) = \begin{cases} 3x, & \text{if } x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$$

20. $f(3)$

21. $f(-1)$

Solve the system using an algebraic method.

22. $3x - 4y = 17$

$2x - y = 8$

23. $4x + y = 6$

$8x - 2y = -4$

24. $3x + 8y = 3$

$2x - 5y = 2$

Graph the quadratic function. (ON GRAPH PAPER)

25. $y = x^2 + 2x + 3$

26. $y = -\frac{1}{2}(x + 5)^2 + 2$

27. $y = (x - 1)^2 + 3$

Solve the quadratic equation.

28. $2x^2 + 5 = 11$

29. $4x^2 + 12x + 9 = 0$

Use the quadratic formula to solve the equation.

30. $2x^2 + x - 5 = 0$

31. $x^2 - 8x + 9 = 0$

32. $3x^2 - x - 4 = 0$

33. $x^2 - 18 = 0$

Factor using any method.

34. $9x^4 - 1$

35. $6x^5 + 15x^3 + 6x$

36. $3x^4 - 81x$

37. $4x^4 + 37x^2 + 9$

38. $6x^3 + 9x^2 + 2x + 3$

Divide using synthetic division.

39. $(2x^3 - 3x + 5) \div (x - 2)$

40. $(3x^2 - 4x + 6) \div (x - 4)$