

H Algebra 2 Maintenance Assignment

Welcome to Honors Algebra 2! In order to ensure success in this course, there is a mandatory summer assignment packet. This packet is due on the first day of your math class whether it occurs in first or second semester. While it is best to not put the assignment off to the last minute, you want to complete the assignment close enough to the start of your course so that the ideas are fresh. There will be an assessment on this material the first week of class, after the packet has been reviewed.

All topics in this assignment should be a review. You should not only be familiar with the topics but you should know them well enough to be tested on them. This is material that will not be taught in the course. It is expected that you come in with a strong understanding of these topics. If you are unsure of how to do these problems, feel free to seek help with them. There are many websites with helpful videos including Khan Academy, YouTube, mathisfun.com, purplemath.com, shmoop.com, and algebrahelp.com.

Give us your best work while giving yourself the opportunity to get off to a great start! We look forward to having you in class!!

Sincerely,
The Math Department

Please do all work on a separate sheet of paper, and show all work when appropriate.

1.) Simplify the expression: $8(n - 3n^2) - 2(5 - 6n)$

For #2-3, solve the indicated variable.

2.) $A = \frac{1}{2}bh$ for b .

3.) $5x - 7y = 10$ for y .

For #4-8, solve each equation algebraically. Give your answers as exact values (no rounded decimals)

4.) $\frac{1}{2}x + \frac{4}{5} = \frac{5}{6}x + \frac{1}{45}$

5.) $1.7(g + 5) = 2.1g + 9.7$

6.) $\frac{1}{2}|x + 3| - 5 = 1$

7.) $-7 + 3n + 11 = 6n + 5 - 3n$

8.) $6b + 5 - 2b = 4 + 4b + 1$

For #9-11, solve the inequality and graph your solution on a number line.

9.) $-4r + 7 < 3$

10.) $-10 \leq 5y + 2 < 37$

11.) $3|x - 5| + 2 > 14$

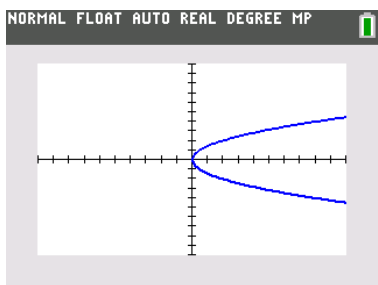
For #12-15, tell whether each relation is a function. For #15, also state the domain and range.

12.)

x	y
-2	8
-1	2
0	0
1	2

13.) $y = 3x - 5$

14.)



15.) $(-4,3), (-2,1), (0,3), (1,-2), (-2,-4)$

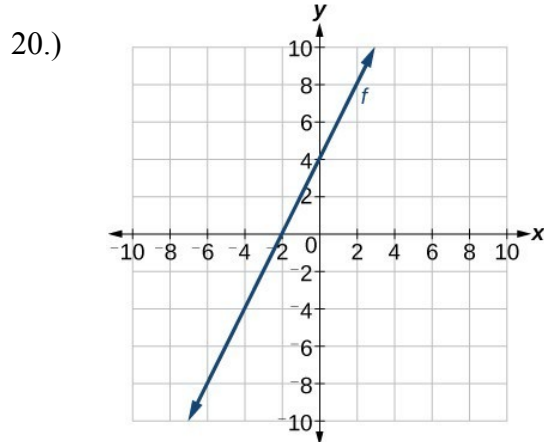
16.) Evaluate $f(x) = x^2 - x + 3$ for $f(-4)$.

For #17-20, write the equation of the line, in slope-intercept form, with the given information.

17.) The line passes through the points $(5, -2)$ and $(2, 10)$.

18.) The line passes through $(2, -3)$ and is parallel to the line $2x + 4y = 5$.

19.) The line passes through $(2, -3)$ and is perpendicular to the line $2x + 4y = 5$.



For #21-24, graph the inequality on a coordinate plane (graph paper).

21.) $y < 4$

22.) $x \geq -2$

23.) $y > 3x + 1$

24.) $3x - 4y \geq 8$

For #25-26, solve the system of equations using substitution or elimination.

25.)
$$\begin{aligned} 2x - y &= 1 \\ x - 2y &= -6 \end{aligned}$$

26.)
$$\begin{aligned} 3x - 7y &= 10 \\ 6x - 8y &= 8 \end{aligned}$$

For #27-32, simplify the expressions.

27.) $\frac{-2e^2f^7}{6e^3f^{-1}}$

28.) $\left(\frac{7x^4}{3y^5}\right)^2$

29.) $\sqrt{12}$

30.) $\sqrt{72}$

31.) $\sqrt{3} \cdot \sqrt{15}$

32.) $\sqrt{\frac{1}{4}}$

33.) Solve $x^2 - 4x + 1 = 0$ using the quadratic formula. Leave your answer in simplest radical form.

For #34-38, perform the indicated operation and simplify.

34.) $(2x^3 - 5x^2 + 3x - 9) + (x^3 + 6x^2 + 11)$

35.) $(8x^3 - x^2 - 5x + 1) - (3x^3 + 2x^2 + x + 7)$

36.) $(m^2 + 6)(m - 3)$ 37.) $(d - 5)^2$ 38.) $(3w - 2)(w^2 + 4w - 5)$

39.) Solve by taking square roots. Leave your answer in exact form if necessary:

$$-p^2 - 12 = -87$$

For #40-42, solve by factoring completely.

40.) $3x^2 + 15x - 42 = 0$ 41.) $6x^2 - 13x - 5 = 0$

42.) $x^3 + 2x^2 - 4x - 8 = 0$ (Hint: use grouping)

For #43-44, factor and simplify the expression. State any restrictions on the variables.

43.) $\frac{3x^2 - 10x + 8}{x^2 - 4}$

44.) $\frac{4x^3 + 20x^2 - 24x}{2x^2 - 2x^3}$