

Honors Calculus
Summer Assignment

Due August 17, 2009

Show all work on answer sheet and circle your answers.
If your answer is the equation of a line, use $y=mx+b$ form.

Assignment counts 10% of your first quarter grade.



1. Find the intercepts: $y = x^2 - 2x - 3$.

2. Find the intercepts: $y = \frac{2x - 1}{3 - x}$.

3. Identify the type(s) of symmetry: $y = |x| - 2$.

4. Sketch the graph of a curve that is symmetric with respect to the x -axis and has intercepts at $(0, 3)$, $(0, -3)$ and $(2, 0)$.

5. Find all points of intersection: $y = -x^2 + 4x$ and $y = x^2$.

6. a. Use a graphing utility to graph the equation $y = x^4 - 3x^2 + 2$.

b. Identify the intercepts of the graph.

c. Test for symmetry.

7. Sketch the graph of the equation $y = x^2 - 3x + 2$. Label the intercepts on the sketch.

8. Find the slope of the line passing through the points $(5, 9)$ and $(-1, -3)$.

9. Find the equation of the line that passes through the point $(-1, 5)$ and has a slope of 2.

10. Write the equation of the line having the following data points.

x	-3	0	3	6
y	-11	-5	1	7

11. Find the slope and the y -intercept of the line given by the equation $5x + 4y - 12 = 0$.

12. Find the equation of the line that passes through the point $(-3, -2)$ and is parallel to the line $3x + 2y - 5 = 0$.

13. Find an equation in general form for the line that passes through the point $(-1, 4)$ and is perpendicular to the line $2x + 3y = 6$.
14. Find an equation for the line that passes through the point $(2, 3)$ and is parallel to $x = 4$.
15. Sketch the graph of the equation $4x - 2y + 8 = 0$.
16. A student working for a telemarketing company gets paid \$3 per hour plus \$1.50 for each sale. Let x represent the number of sales the student has in an 8-hour day.
- Write a linear equation giving the day's salary S in terms of x .
 - Use the linear equation to calculate the student's salary on Wednesday if the student makes 14 sales that day.
 - Use the linear equation to calculate the number of sales the student would have to make in order to earn at least \$100 a day.
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17. Find the domain of the function: $f(x) = \frac{1}{x+2}$.

18. Given $f(x) = 3x - 7$, find $f(x+1) + f(2)$.

19. Given $f(x) = |3x - 6|$, find $f(0) - f(3)$.

20. If $f(x) = 3 - x^2$, find:

a. $f(3)$

b. $f(-1)$

c. $f(2 + \Delta x)$

21. If $g(x) = x^2 + 3x - 1$, find $\frac{g(x + \Delta x) - g(x)}{\Delta x}$.

22. Let $f(x) = \begin{cases} x^2 - 4, & x < 2 \\ 3 - 2x, & x \geq 2 \end{cases}$.

Evaluate: **a.** $f(0)$

b. $f(2)$

c. $f(3)$

23. Sketch a graph of $f(x) = x^3 - 1$.

24. Is the following function even or odd? $y = -x^4 + 2x^2 - 1$.

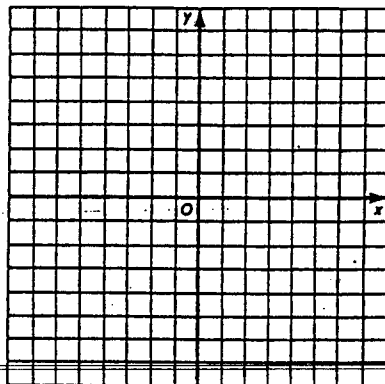
25. Given $f(x) = 7x^2 - 3$ and $g(x) = 9 - 2x$, find $(g \circ f)(x)$.

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2.

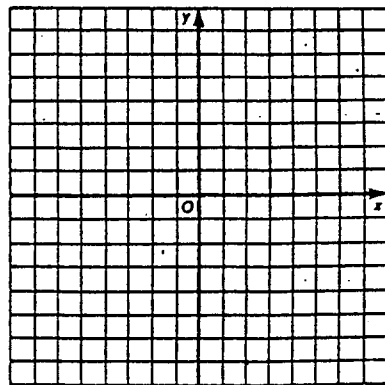
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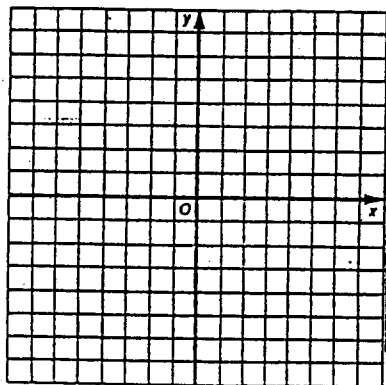


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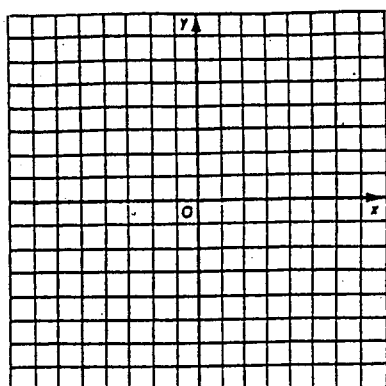
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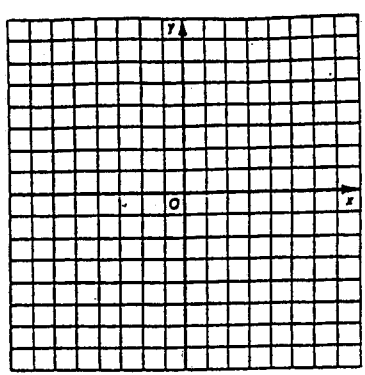
19.

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