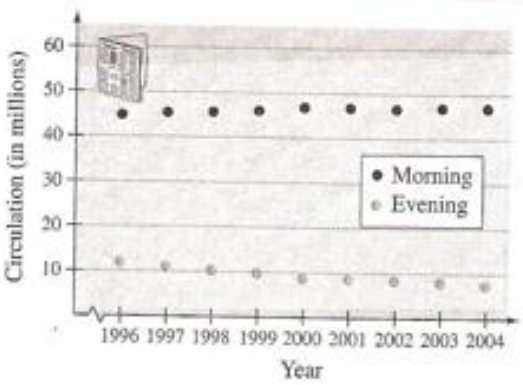
Assignment #1-1 **Secondary 3 Honors**

You will need to use your own paper for this assignment.

1-4: Which ordered pairs are functions? Explain your reasoning.

1. {(0,1), (1,-2), (2,0), (3,2)}
2. {(0,0), (1,0), (2,0), (3,0)}
3. {(0,-1), (2,2), (1,-2), (3,0), (1,1)}
4. {(0,2), (3,0), (1,1)}



5 & 6: *Use the graph to the left which shows the circulation (in millions) of daily newspapers in the United States.*

5. Is the circulation of morning newspapers a function of the year? Is the circulation of evening newspapers a function of the year? Explain.

6. Let $f(x)$ represent the circulation of evening newspapers in the year x. Find $f(2004)$.

7-10: Determine whether the equation represents y as a function of x.

7. $x^2+y^2=4$ 8. $x=y^2+1$ 9. $y=|4-x|$ 10. $x=-y+5$ 11. $y=\sqrt{x^2-1}$

12-16: Evaluate the function at each specified value of the independent variable and simplify:

12. $h(t)=t^2-2t$ (a) $h(2)$ (b) $h(1.5)$ (c) $h(x+2)$

13. $f(x)=\sqrt{x+8}+2$ (a) $f(-8)$ (b) $f(1)$ (c) $f(x-8)$

14. $q(x)=\dfrac{1}{x^2-9}$ (a) $q(0)$ (b) $q(3)$ (c) $q(y+3)$

15. $f(x)=\begin{cases}2x+5, & x\le 0\\ 2-x^2, & x>0\end{cases}$ (a) $f(-2)$ (b) $f(0)$ (c) $f(1)$

16. $f(x)=\begin{cases}x+2, & x<0\\ 4, & 0\le x<2\\ x^2+1, & x\ge 2\end{cases}$ (a) $f(-2)$ (b) $f(1)$ (c) $f(4)$

17 & 18: Find all real values of x such that $f(x)=0$. 17. $f(x)=15-3x$ 18. $f(x)=\dfrac{2x-3}{7}$

19. Find the value(s) of x for which $f(x)=g(x)$: $f(x)=x^2+2x+1,\quad g(x)=7x-5$

20-24: Find the domain of each function:

20. $h(t)=\dfrac{4}{t}$ 21. $s(y)=\dfrac{3y}{y+5}$ 22. $h(x)=\dfrac{10}{x^2-2x}$ 23. $f(t)=\sqrt{t+2}$ 24. $g(y)=\dfrac{y+2}{\sqrt{y-10}}$

25 & 26: Find the difference quotient and simplify your answer:

25. $g(x) = 3x - 1, \quad \frac{g(x+h) - g(x)}{h}$

26. $f(x) = x^2 - x + 1, \quad \frac{f(2+h) - f(2)}{h}$

MEMORIZE the formulas for lines:	$y - y_1 = m(x - x_1)$	$m = \frac{y_2 - y_1}{x_2 - x_1}$	$y = mx + b$

27. Write equations of lines in point-slope form: $y - y_1 = m(x - x_1)$

(a) (3, 4) (-2, 7) (b) (5, 6) (-1, 6) (c) m = ¾ (2, 7)

28. Write your equations of lines from #27 into slope-intercept form: $y = mx + b$

(a) (3, 4) (-2, 7) (b) (5, 6) (-1, 6) (c) m = ¾ (2, 7)

29. Write an equation for the line passing through the points (5, 3) and (5, -3).

30. Graph the lines showing at least 2 points:

(a) y = -½ x + 1 (b) y – 4 = 2(x + 1) (c) x = 3