

A – Analyzing Functions

Week 8

Choose **one** problem from below to complete as your **first** problem in your homework journal.

A1. [August 2019 Regents]

The functions $r(x)$ and $q(x)$ are given below.

Which function has the *smallest* minimum value, and what is it?

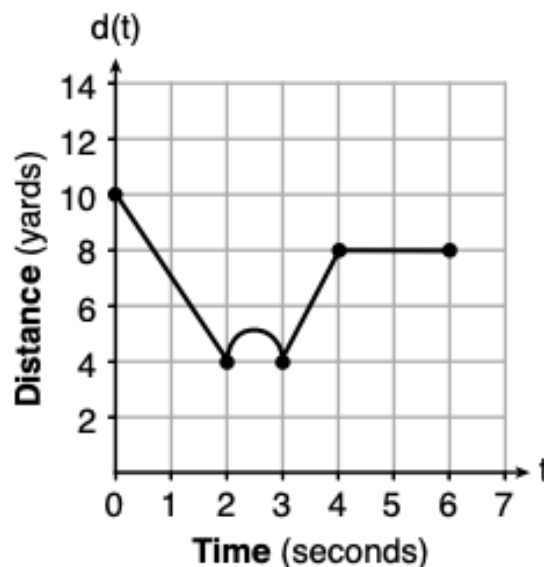
x	$r(x)$
-4	-12
-3	-15
-2	-16
-1	-15
0	-12
1	7

$$q(x) = x^2 + 2x - 8$$

A2. [August 2019 Regents]

A child is playing outside. The graph below shows the child's distance, $d(t)$, in yards from home over a period of time, t seconds.

Explain what the child could be doing during the interval $4 \leq t \leq 6$.



A3. [August 2019 Regents]

Which interval represents the range of the function

$$h(x) = 2x^2 - 2x - 4?$$

JUSTIFY your answer.

(1) $(0.5, \infty)$

(2) $(-4.5, \infty)$

(3) $[0.5, \infty)$

(4) $[-4.5, \infty)$

B – Average Rate of Change

Week 8

Choose **one** problem from below to complete as your **second** problem in your homework journal.

B1. *[June 2019 Regents]*

A blizzard occurred on the East Coast during January of 2016. Snowfall totals for the storm were recorded for Washington, D.C. in the table below.

Washington, D.C.	
Time	Snow (inches)
1 a.m.	1
3 a.m.	5
6 a.m.	11
12 noon	33
3 p.m.	36

Which interval, 1AM to 12 noon, or 6AM to 3PM, had the greatest rate of snowfall in inches per hour?

Justify your answer.

B2. *[August 2018 Regents]*

The table represents the height of a bird above the ground during flight, with $P(t)$ representing the height in feet and t representing the time in seconds.

t	P(t)
0	6.71
3	6.26
4	6
9	3.41

Calculate the average rate of change from 3 to 9 seconds, in feet per second.

B3.

Frances is selling lemonade. The function $g(t) = \frac{t^2+4}{2}$ represents the number of glasses sold, g , after t hours. What is the average rate at which she is selling glasses of lemonade between the hours of $t=2$ and $t=6$. Show work and include proper units.

C – Mixed Review

Week 8

Choose **one** problem from below to complete as your **third** problem in your homework journal.

C1. *[August 2019 Regents]*

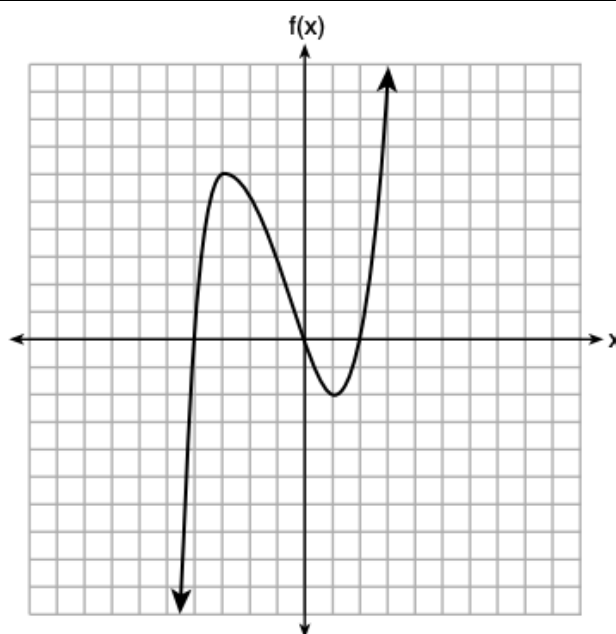
If $g(x) = -4x^2 - 3x + 2$, determine $g(-2)$.

C2. *[August 2018 Regents]*

The graph of $f(x)$ is shown to the right. →

What is the value of $f(-3)$?

Justify your answer.



C3. *[January 2019 Regents]*

If $C = 2a^2 - 5$ and $D = 3 - a$, then $C - 2D$ equals

(1) $2a^2 + a - 8$

(3) $2a^2 + 2a - 11$

(2) $2a^2 - a - 8$

(4) $2a^2 - a - 11$