**March 8, 2024**

Algebra 1

Our Goal: To review for the Unit 8 test

Warm Up: Please have your homework out for checking

Today's Homework:
8.1-8.6 Review, p.473: 1-17

Previous Homework
8.5 Exercises, p.455-456: 6-72 (multiples of 6)
that's 6,12,18,24,30,36,42,48,54,60,66,72
(graph paper online, if helpful)

$y = ax^2 + bx + c$ (standard)

$y = a(x-h)^2 + k$ (vertex)

$y = a(x-p)(x-q)$ (intercept form)

taking a trip

20 miles in 30 min

40 miles in 40 min

stopped for food for 20 min.

100 miles 60 min.

avg speed = $\frac{\text{total dist.}}{\text{total time.}}$

$= \frac{160}{150}$

# Algebra 1

Our Goal: To finish reviewing for the Unit 8 test

Warm Up: Review topics

Today's Homework:
- Online practice test
- There is iready due this week

Previous Homework
None

## Chapter 8 Test Topics

- Characteristics of a quadratic function
  - > Vertex
  - > Equation of axis of symmetry
  - > Interval where increasing / decreasing
  - > y-intercept
  - > x-intercept(s) or zeros
  - > minimum or maximum value
  - > Domain / Range
  - > Sketching the graph
- Even and odd functions
- Finding the zeros and vertex of a parabola
- Writing the equation of a quadratic function

$f(x) = -2(x-1)^2 + 6$

vertex: ( 1 , 6 )

equation of axis of symmetry: $x = 1$

interval where increasing: $x < 1$

interval where decreasing: $x > 1$

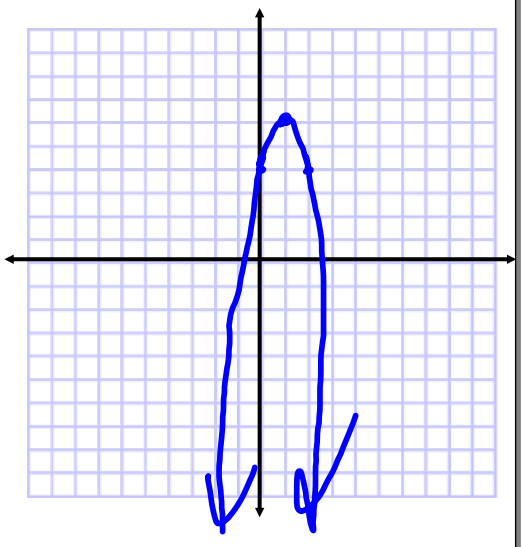
domain: all real #s

range: $y \leq 6$

minimum or maximum

min/max value: 6

sketch the graph



Is the function even, odd, or neither?

$f(x) = x + 9$

$f(-x) = -x + 9$

neither

Is the function even, odd, or neither?

$g(x) = x^3 + 3x$

$g(x) = (-x)^3 + 3(-x)$

odd

Write the equation of the quadratic function
with a vertex of ( –2 , 4 ) that passes through ( 0 , 2 )

$y = a(x-h)^2 + k$

$y = -\frac{1}{2}(x+2)^2 + 4$

$y = a(x+2)^2 + 4$

$2 = a(4) + 4$

$2 = 4a + 4$

$-2 = 4a$

$\frac{-2}{4} = \frac{4a}{4}$

$-\frac{1}{2} = a$

Write the equation of the quadratic function with x-intercepts of –1 and 7 that passes through ( 3 , 8 )

$y = a(x-b)(x-c)$

$y = a(x+1)(x-7)$

$8 = a(3+1)(3-7)$

$8 = a(4)(-4)$

$8 = a(-16)$

$\frac{8}{-16} = \frac{a(-16)}{-16}$

$-\frac{1}{2} = a$

$y = -\frac{1}{2}(x+1)(x-7)$

$y = ax^2 + bx + c$

domain: all real #'s

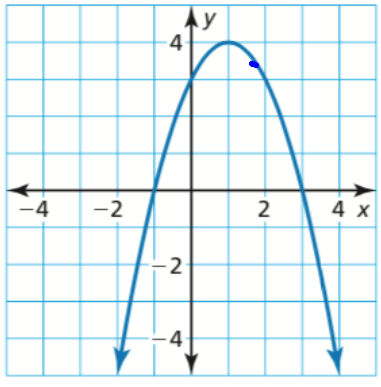
range: $y \leq 4$

zeros: $-1$ and $3$

width compared to $y=x^2$

narrower / same / wider

equation of the function in vertex form:




$y = -1(x-1)^2 + 4$

$\therefore y = -(x-1)^2 + 4$