Bell Work 4/15/2015

Grab your calculator and the EOC Practice Questions.

Begin working on the questions. Please treat this as a test and be quiet.

1. If the first Now = −9, which equation represents this sequence?

−9, −4, 1, 6, 11, . . .

A. Next = Now − 5

B. Next = Now + 5

C. Next = 5 · Now − 1

D. Next = 5 · Now + 1

2. Which inequality statement is *true*?

A. $8 < \sqrt{78} < 9$ 8.3

B. $38 < \sqrt{78} < 40$ 8.3

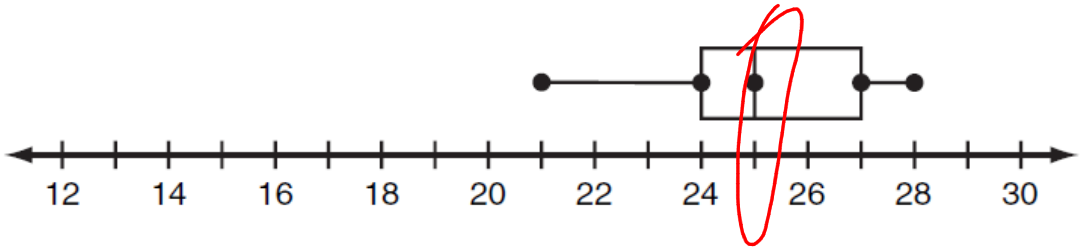
C. $77 < \sqrt{78} < 79$ 8.3

D. $6{,}083 < \sqrt{78} < 6{,}085$ 8.3

$\sqrt{64}$ $\sqrt{78}$ $\sqrt{81}$

8 9

3. Daniel made a box-and-whisker plot of the ages of his cousins.



What is the median age of his cousins?

A. 24

B. 25

C. 27

D. 28

4. Given $y = x^2$, how would the graph of $y = x^2 - 2$ differ?

A. It shifts 2 units up.

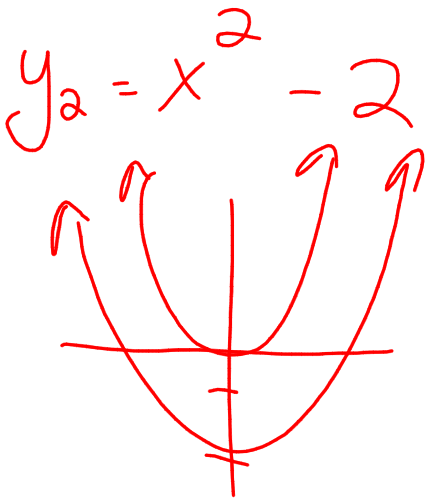
B. It shifts 2 units down.

C. It shifts 2 units left.

D. It shifts 2 units right.

$y_1 = x^2$

$y_2 = x^2 - 2$



5. Given the following fractions:

$$\frac{3}{4}, \frac{18}{29}, \frac{24}{39}, \frac{3}{5}, \frac{12}{18}$$

Which group below has the fractions in order from *least* to *greatest*?

A. $\frac{3}{5}, \frac{24}{39}, \frac{18}{29}, \frac{12}{18}, \frac{3}{4}$

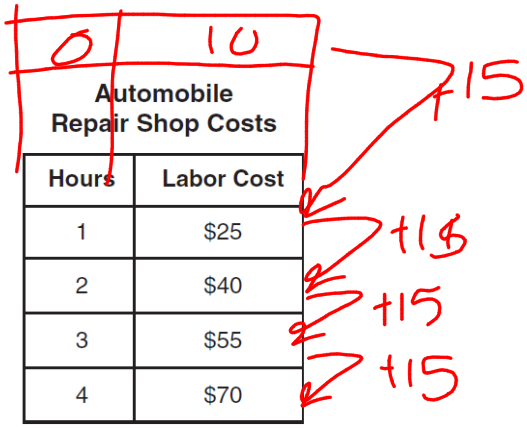
.6, .61, .62, .66 .75

B. $\frac{3}{4}, \frac{3}{5}, \frac{18}{29}, \frac{24}{39}, \frac{12}{18}$

C. $\frac{3}{5}, \frac{12}{18}, \frac{24}{39}, \frac{3}{4}, \frac{18}{29}$

D. $\frac{3}{4}, \frac{3}{5}, \frac{12}{18}, \frac{18}{29}, \frac{24}{39}$

6. The automobile repair shop uses the following chart to determine labor costs for each job.



Automobile Repair Shop Costs

Hours	Labor Cost
1	$25
2	$40
3	$55
4	$70

Which function should the automobile repair shop use to determine the labor cost, C, for a job that takes h hours?

A. $C = 15h$

B. $C = 15h + 10$

C. $C = 25 + 15h$

D. $C = 25h + 15h$

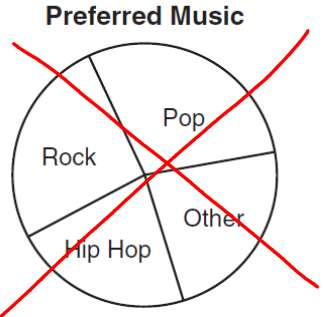
7. A survey was administered to 500 high school students to determine the type of music they prefer. The survey indicated that 22% prefer rock, 26% prefer hip hop, 29% prefer pop, and 23% selected "other." Which representation best illustrates the *number* of students preferring each type of music?

A.

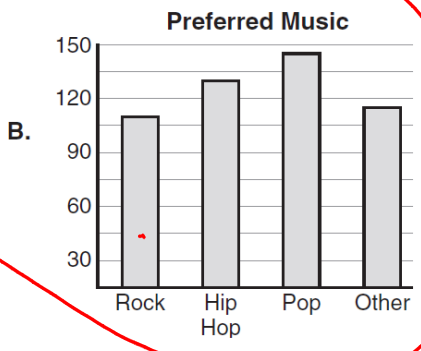
Preferred Music

Type	Percent of Students
Rock	22
Hip Hop	26
Pop	29
Other	23

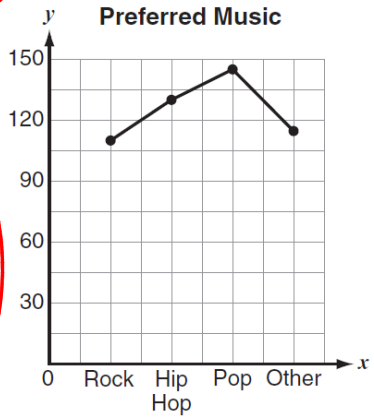
C.



B.



D.



Classwork/Homework from Tuesday.

Date: _____ Hour: ___

raph the quadratic: $y = (2x - 1)(4x + 2)$

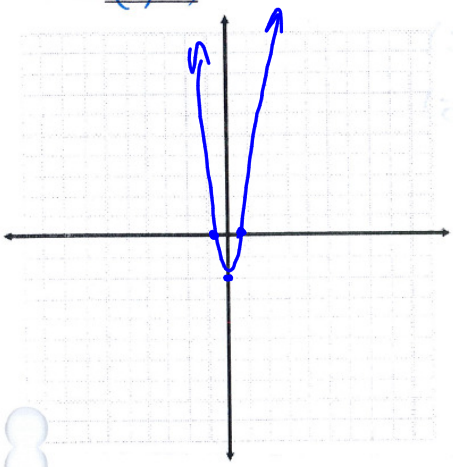
x-intercept: (½, 0)

x-intercept: (-½, 0)

y-intercept: (0, -2)

vertex: (0, -2)

$4x + 2 = 0$
$-2 \quad -2$
$\frac{4x}{4} = \frac{-2}{4}$
$x = -\frac{1}{2}$



Vertex $x = \frac{\frac{1}{2} + \frac{-1}{2}}{2} = \frac{0}{2} = 0$

$y = (2(0) - 1)(4(0) + 2)$

$y = (-1)(2)$

$y = -2$

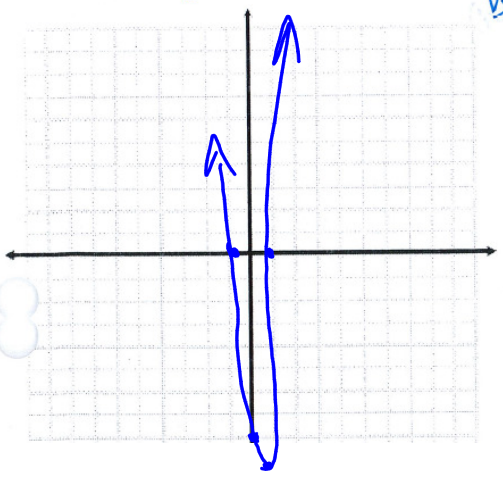
Graph the quadratic: $y = (3x - 4)(3x + 2)$

x-intercept: $(4/3, 0)$

x-intercept: $(-2/3, 0)$

y-intercept: $(0, -8)$

vertex: $(1/3, -9)$



Vertex

$x = \frac{\frac{4}{3} + \frac{-2}{3}}{2} = \frac{\frac{2}{3}}{2} = \frac{2}{3} \cdot \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$

$y = (3(1/3) - 4)(3(1/3) + 2)$

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

$y = (-3)(3)$

$y = -9$

Graph the quadratic: $y = x^2 - 5x - 6$

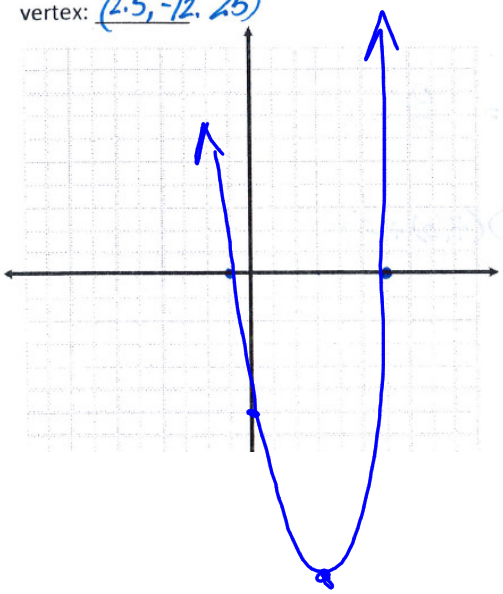
$y = (x+1)(x-6)$

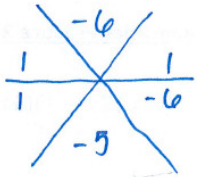
x-intercept: $(-1, 0)$

x-intercept: $(6, 0)$

y-intercept: $(0, -6)$

vertex: $(2.5, -12.25)$





$y = (x+1)(x-6)$

$\frac{-1+6}{2} = \frac{5}{2}$

$y = (2.5+1)(2.5-6)$

$y = (3.5)(-3.5)$

$y = -12.25$

Graph the quadratic: $y = x^2 - 5x + 4$

$y = (x-1)(x-4)$

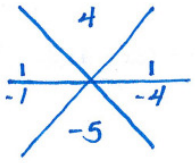
x-intercept: (1, 0)

x-intercept: (4, 0)

y-intercept: (0, 4)

vertex: (2.5, 2.25)

$y = (x-1)(x-4)$

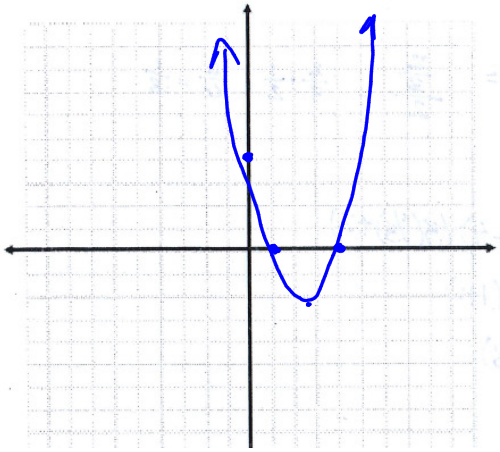


$\frac{1+4}{2} = \frac{5}{2}$

$y = (2.5-1)(2.5-4)$

$(1.5)(-1.5)$

$y = -2.25$



VERTICAL MOTION A *projectile* is an object that is propelled into the air but has no power to keep itself in the air. A thrown ball is a projectile, but an airplane is not. The height of a projectile can be described by the **vertical motion model**.

KEY CONCEPT *For Your Notebook*

Vertical Motion Model

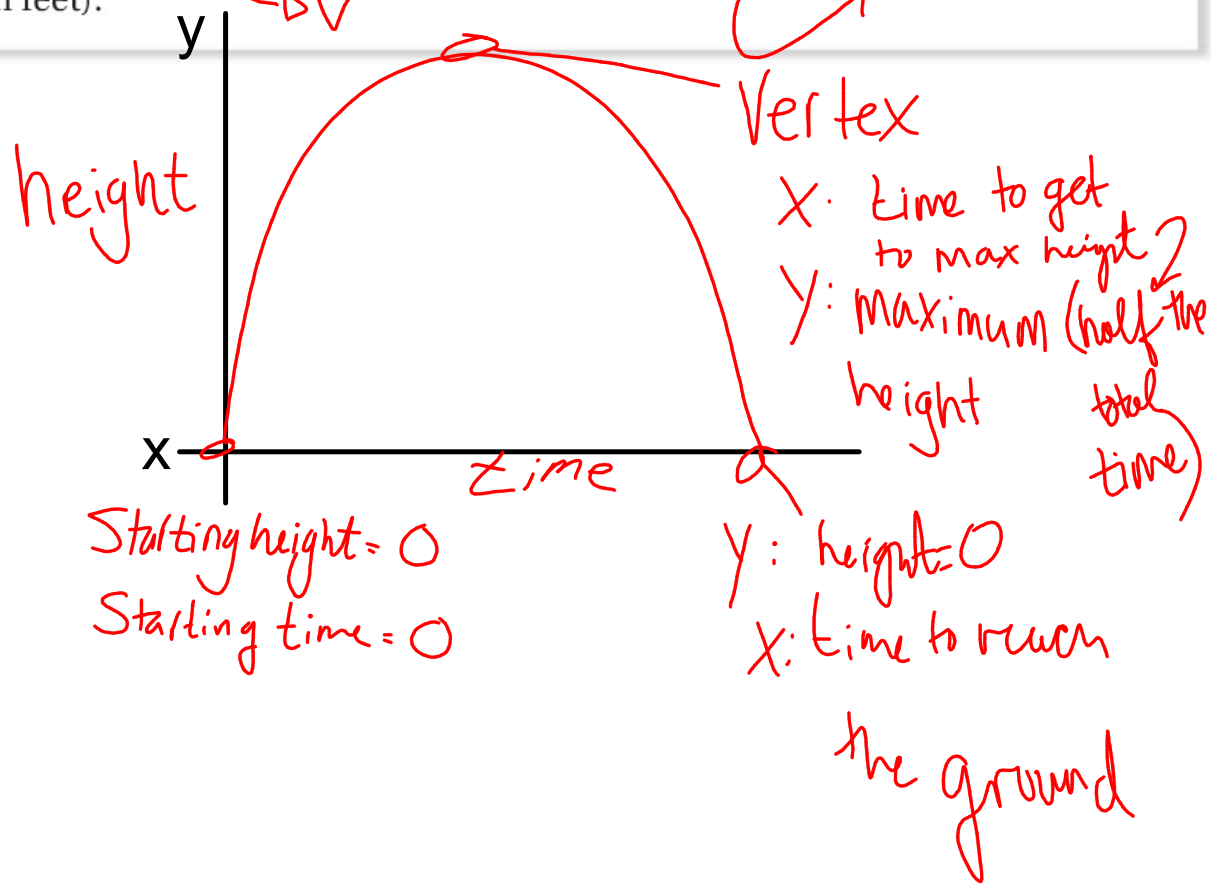
The height h (in feet) of a projectile can be modeled by

$$h = -16t^2 + vt + s$$

where t is the time (in seconds) the object has been in the air, v is the initial vertical velocity (in feet per second), and s is the initial height (in feet).

initial velocity

initial height



EXAMPLE 5 **Solve a multi-step problem**

off the ground. initial height = 0 = s

ARMADILLO A startled armadillo jumps straight into the air with an initial vertical velocity of 14 feet per second. After how many seconds does it land on the ground?

$h = -16t^2 + vt + s$

t = ?

h = 0

v = initial velocity

$0 = -16t^2 + 14t + 0$

$0 = -16t^2 + 14t$

$0 = 2t(-8t + 7)$

$\frac{2t}{2} = \frac{0}{2}$

$t = 0$

$h = 0$

$-8t + 7 = 0$

$-7 \quad -7$

$\frac{-8t}{-8} = \frac{-7}{-8}$

$t = \frac{7}{8}$

$h = 0$

MOTION A cat leaps from the ground into the air with an initial vertical velocity of 11 feet per second. After how many seconds does the cat land on the ground?

$s = 0$

$v = 11$

$t = ?$

$h = 0$

$h = -16t^2 + vt + s$

$0 = -16t^2 + 11t + 0$

$0 = t(-16t + 11)$

$t = 0$

$h = 0$

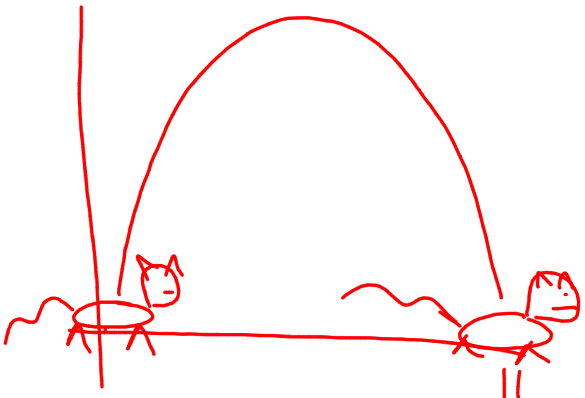
$-16t + 11 = 0$

$-11 \quad -11$

$\frac{-16t}{-16} = \frac{-11}{-16}$

$t = \frac{11}{16}$

$h = 0$



$\frac{11}{16}$ seconds

SPITTLEBUG A spittlebug jumps into the air with an initial vertical velocity of 10 feet per second.

a. Write an equation that gives the height of the spittlebug as a function of the time (in seconds) since it left the ground.

$h = -16t^2 + 10t + 0$

b. The spittlebug reaches its maximum height after 0.3125 second. How high can it jump?

$h = -16(0.3125)^2 + 10(0.3125)$

$h = 1.5625$ feet

HW

Hot Air Balloon

Kickball

Diving Board