Warm Up

Check Factoring Homework answer key.

Name: _____

Homework Questions?

Factor the following expressions completely. (Remember to take out a greatest common factor first, if possible.)

1. $x^2 + 3x - 18$	2. $x^2 - 15x + 50$
3. $2x^2 + 5x + 3$	4. $3x^2 - 11x + 6$
5. $x^2 - 6x + 9$	6. $2x^2 + 11x + 12$

Homework Questions?

7. $3x^2 - 14x - 5$	8. $4x^2 - 20x + 25$
9. $5w^2 + 13w - 6$	10. $7x^2 + 33x - 10$
11. $6x^2 - 15x + 6$	12. $2x^2 + 10x - 28$

$3(2x^2 - 5x + 2)$

Factors of 4 that add to -5

Factors of 4	Sum: -5
-1, -4	-5

$3(2x^2 - x - 4x + 2)$

x	$2x^2$	$-x$
-2	$-4x$	2
	$2x$	-1

$= -5$

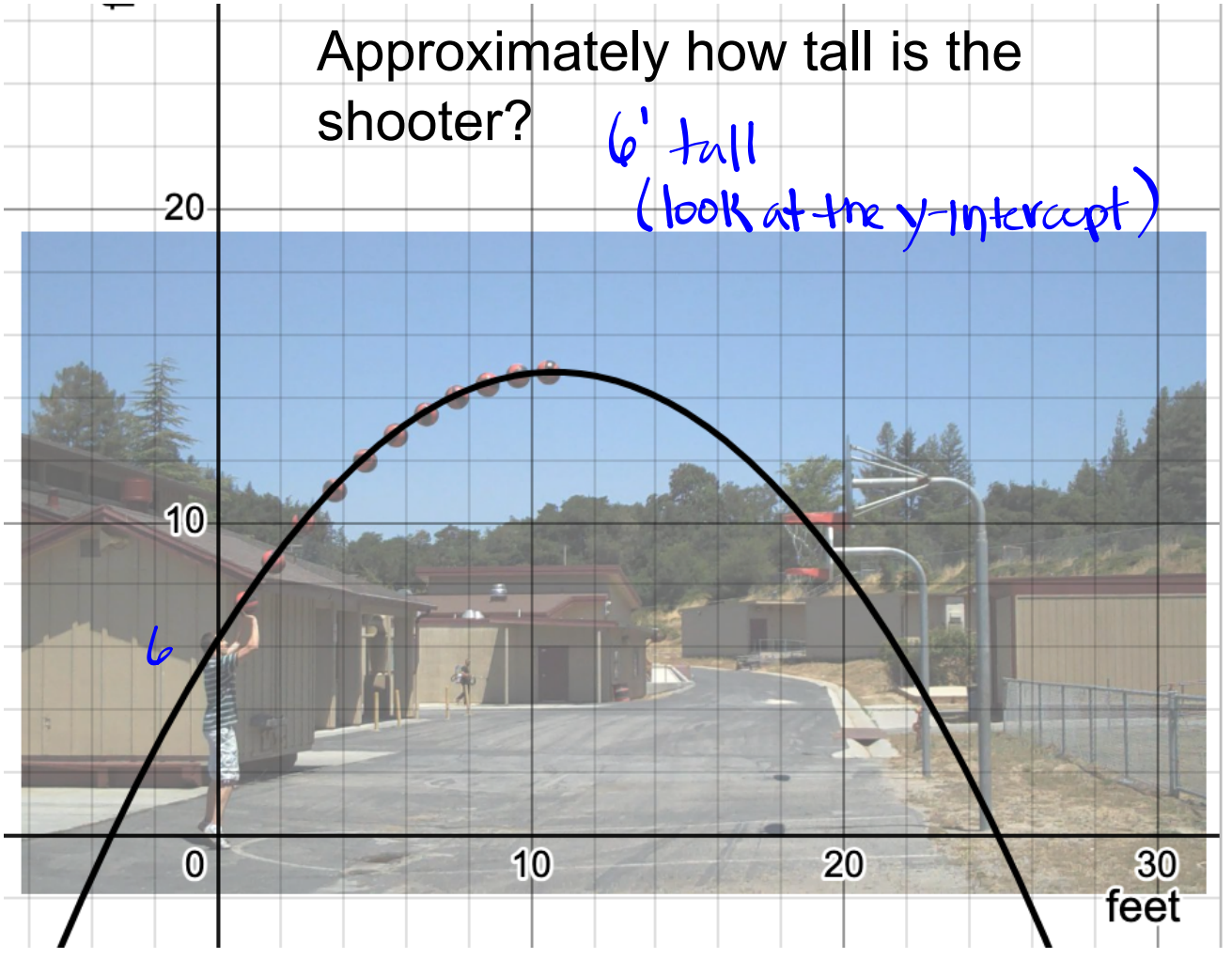
$3(x-2)(2x-1)$

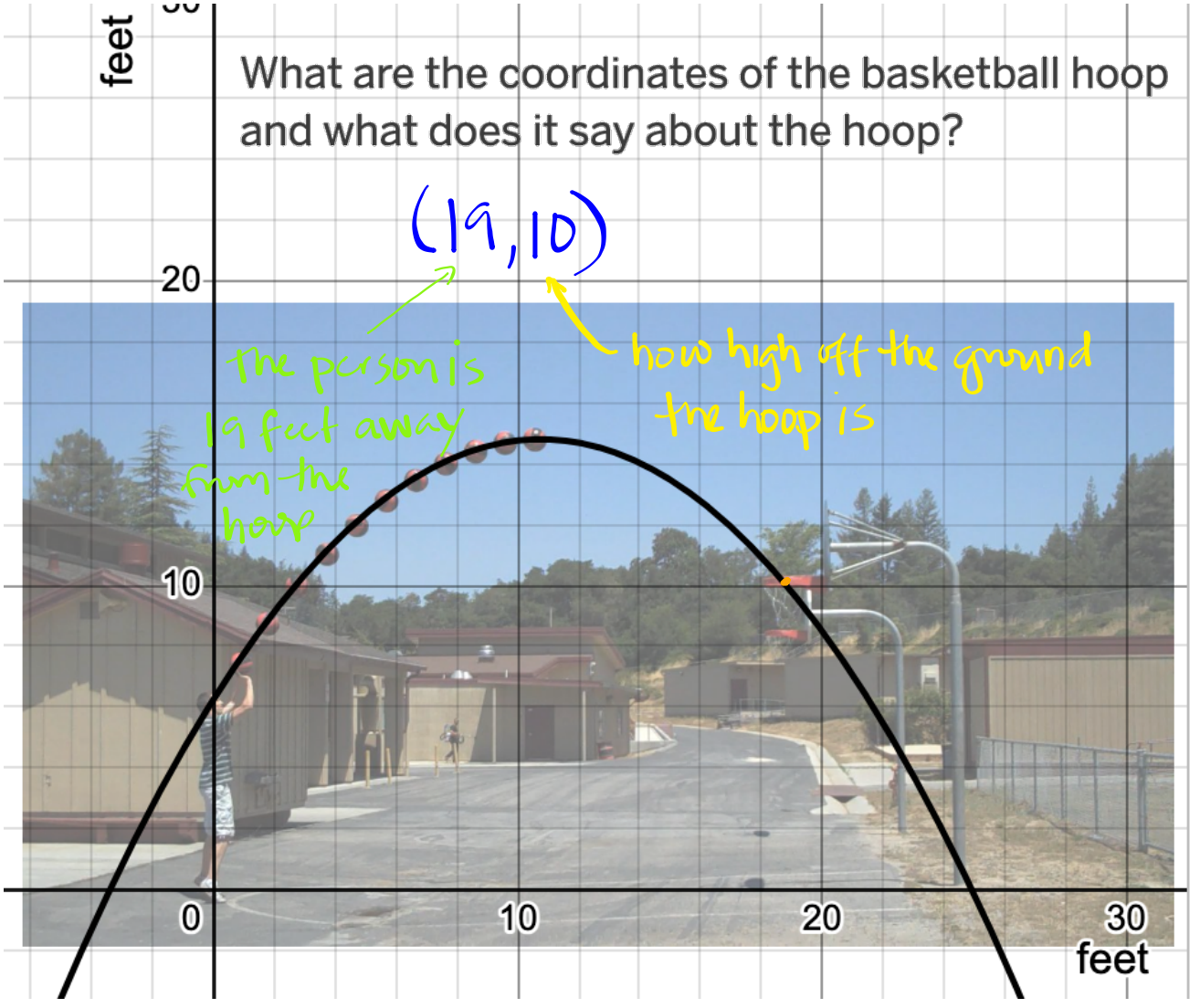
Check: $3(x-2)(2x-1)$

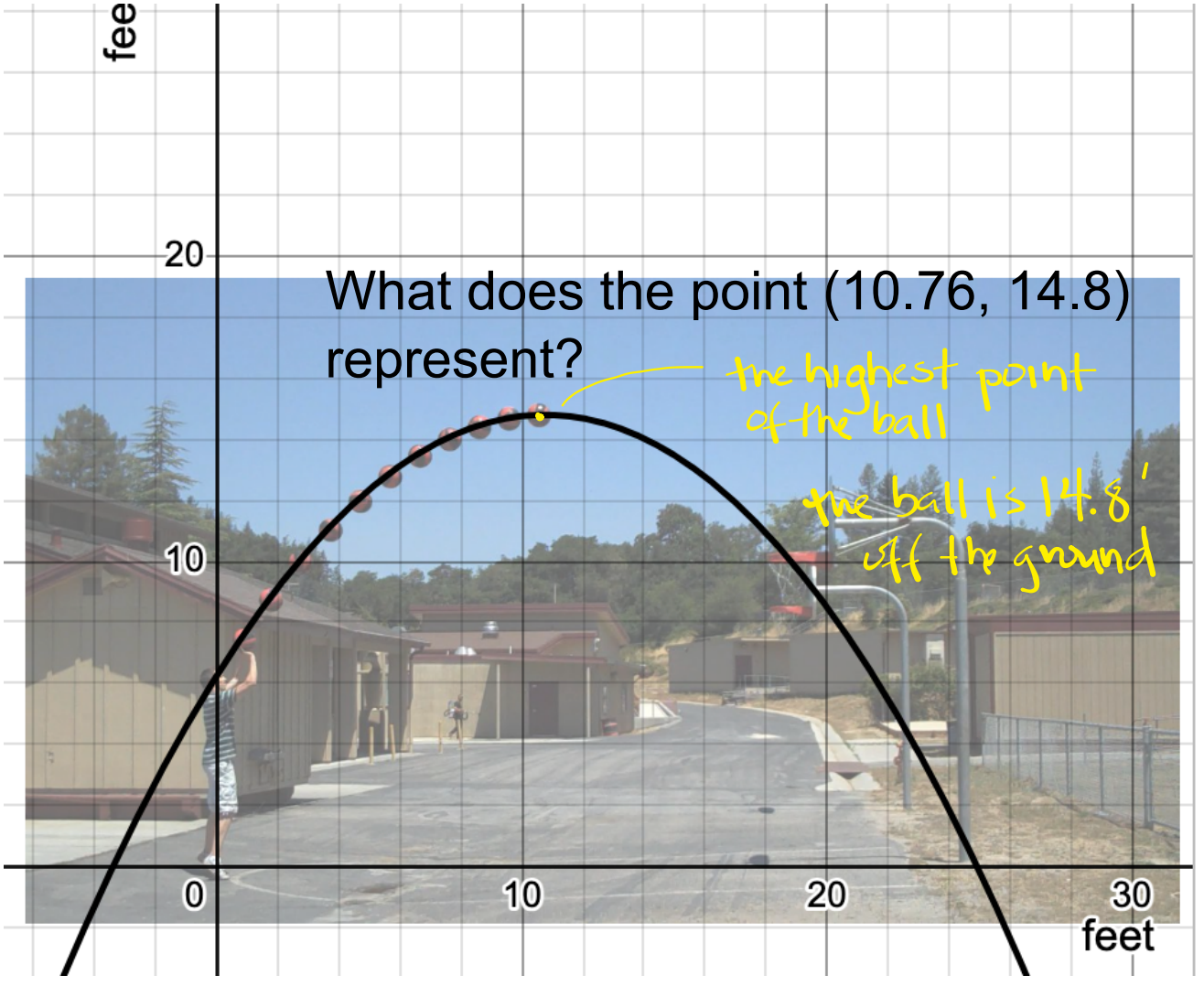
$3(2x^2 - x - 4x + 2)$

$3(2x^2 - 5x + 2)$

$6x^2 - 15x + 6$

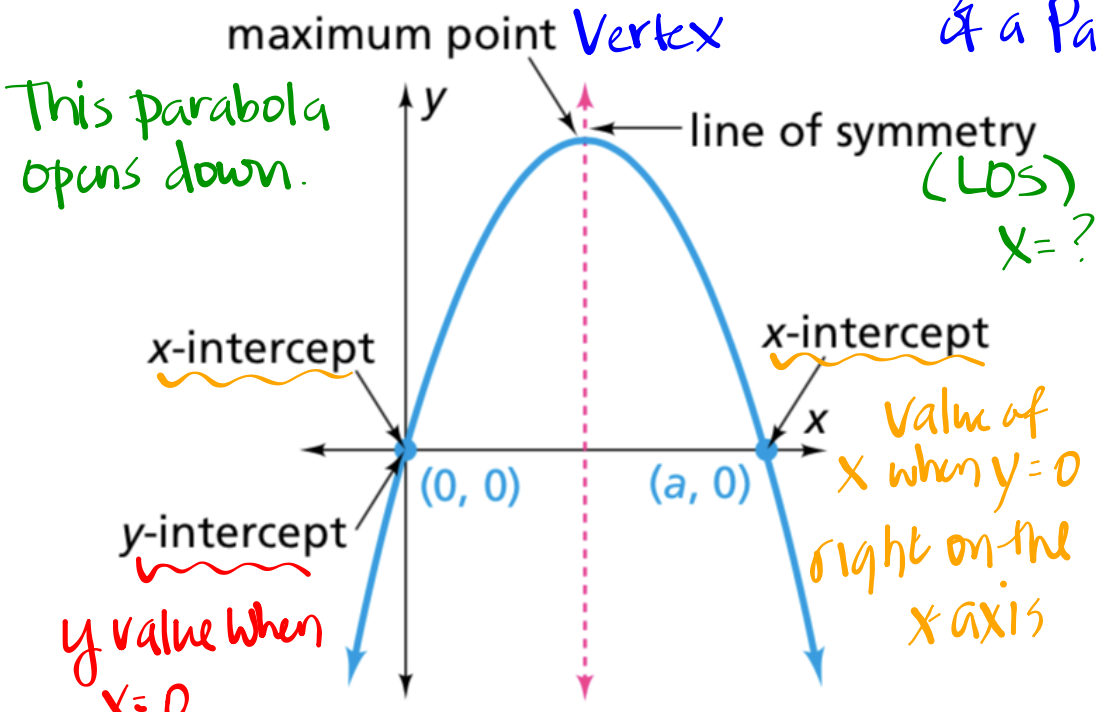

Approximately how tall is the shooter?
6' tall
(look at the y-intercept)
20
10
6
0
10
20
30
feet


feet
What are the coordinates of the basketball hoop and what does it say about the hoop?
(19,10)
the person is 19 feet away from the hoop
how high off the ground the hoop is
20
10
0
10
20
30
feet


fee
20
10
0
10
20
30
feet
What does the point (10.76, 14.8) represent?
the highest point of the ball
the ball is 14.8' off the ground

Parabola Vocabulary

Key Features of a Parabola



This parabola opens down.

(LOS) x = ?

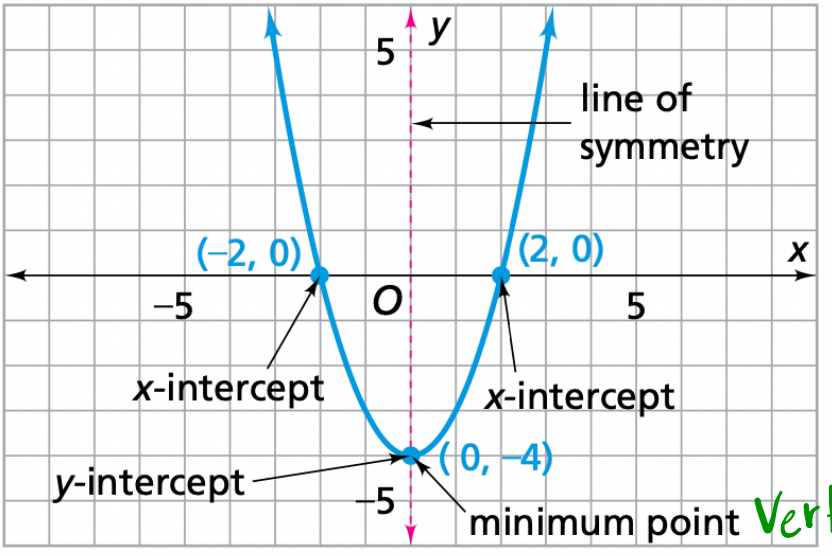
Value of x when y = 0

right on the x axis

y value when x = 0

point on the y-axis

Same for a parabola opening down, except we now have a MINIMUM.



Key Features of a Parabola:

- Up/Down
- y-intercept
- x-intercepts
- Line of Symmetry
- Vertex (this is on our LOS!)

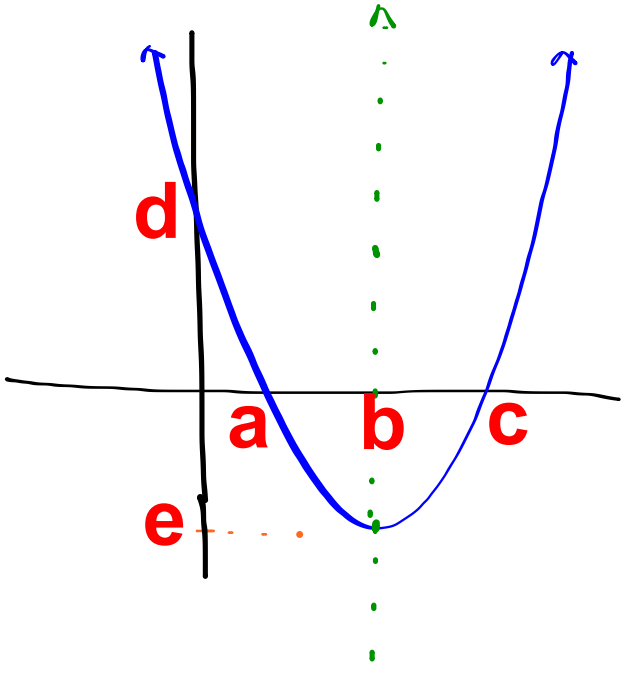
Complete Problem 2.4 A and B

Problem 2.4

A The equations of several quadratic functions are given. For each function:

- Write an equivalent expression for y in expanded or factored form.
- Sketch a graph of the equation. (x,0)
- Label the coordinates of the x- and y-intercepts. (0,y)
- Label the maximum or minimum point.
- Draw the line of symmetry on your graph. x = ?

1. $y = x(x - 6)$
2. $y = 16 - x^2$
3. $y = x^2 + 6x + 9$
4. $y = x^2 + 9x + 20$
5. $y = x^2 + 5x - 14$
6. $y = (3 - x)(2 + x)$



x-int: (a,0)
(c,0)

y-int: (0,d)

vertex: (b,e)

LOS: x = b

Problem 2.4

#1

Factored Form $y = x(x-6)$

Expanded Form $y = x^2 - 6x$

y-intercept: $(0,0)$

x-intercept(s): $(6,0)$ $(0,0)$

vertex: $(3,-9)$

LOS: $x = 3$

Opens: Up

#2 $y = 16 - x^2$ $y = ax^2 + bx + c$

$y = -x^2 + 0x + 16$

Factors of -16

Sum = 0

Use what you learned in Part A to complete this.

Use equations in both expanded and factored forms!

B Without graphing, describe the graph of each equation. Give as many details as possible.

1. $y = x^2 + 8x + 12$ **2.** $y = (x + 3)(x - 3)$ **3.** $y = -x^2 + 6x$

4. Explain what features of the graph of a function, such as intercepts, maximum/minimum point, and line of symmetry, you can predict from an equation of the function. Describe how you can make these predictions.

Homework

Finish classwork