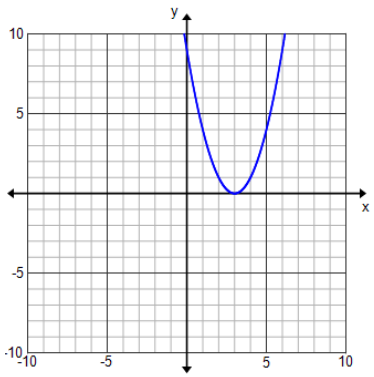
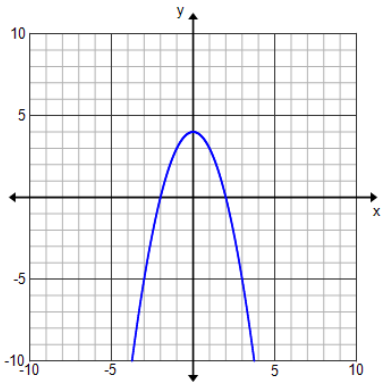
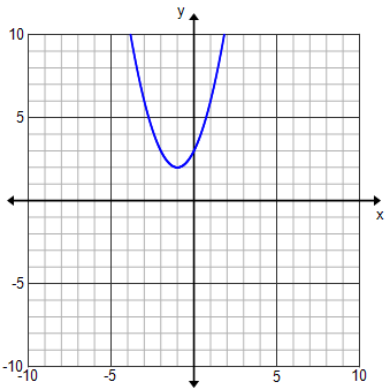
Intermediate Algebra (B) ***Name*** _____

Review – Unit 5 Part 2– Solving Quadratic Equations ***Class period 1 2 3 4 5***

Problems 1-3: Given the graph of a quadratic function, determine if the discriminant is positive, zero, or negative.







1. _____ 2. _____ 3. _____

Simplify Solutions:

4. $x = \frac{-4 \pm \sqrt{64}}{4}$ 5. $x = \frac{6 \pm \sqrt{24}}{4}$ 6. $x = \frac{24 \pm \sqrt{-40}}{10}$

7. $x = \frac{4 \pm \sqrt{121}}{20}$ 8. $x = \frac{9 \pm \sqrt{-27}}{21}$ 9. $x = \frac{12 \pm \sqrt{20}}{10}$

10. $x^2 - 4x + 18 = 0$

Value of the discriminant: _____

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

11. $3x^2 - 7x - 6 = 0$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

12. $x^2 - 10x = -9$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

13. $2x^2 - 36 = 0$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

14. $x^2 + x = 2$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

15. $4x^2 + 1 = 4x$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

16. $x^2 + 5x = 14$

Value of the discriminant: _____

Can this equation be factored? Why? _____

Number and type of solutions: *(Multiple Choice)*

a) 2 Real & Rational Numbers
b) 2 Real & Irrational Numbers
c) 1 Real Number
d) 2 Complex Numbers

Solve using the Quadratic Formula OR Factoring:

17. The height of an object launched vertically is given by $h(t) = -16t^2 + 128t + 10$ where h is the height of the object in feet and t is the time in seconds.

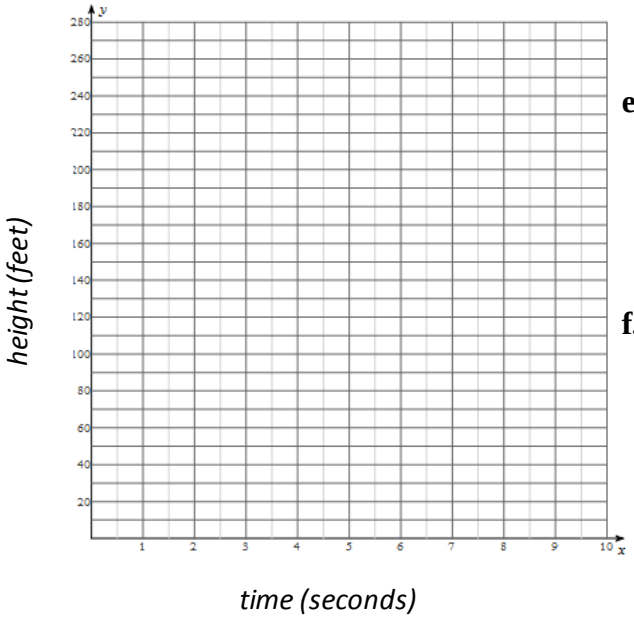
WORK SPACE

a.) Find the height of the rocket after 1 second.

b.) At what time(s) is the rocket at a height of 202 ft?

c.) When does the rocket reach the maximum height? What is the maximum height?

d.) When does the rocket land on the ground?



e.) Using the information you have collected above, sketch a graph depicting the rockets height at time t.

f.) The equation you wrote above only models the height of the rocket while it is in the air. Find the domain and range of this function.

HIGHER LEVEL THINKING!!

18. Given the equation, $x^2 + bx + 9 = 0$, find the value(s) of b to make the equation have the following discriminants. Explain your reasoning.

a) For what value(s) would we need *b* to become in order for the equation to get a **negative** discriminant?

b) For what value(s) would we need *b* to become in order for the equation to get a **positive** discriminant?

c) For what value would we need *b* to become in order for the equation to get a **zero** discriminant?