Name_____ Date_____ Period_____

SOLVING QUADRATICS BY FACTORING WORKSHEET

Example 1:

Use the Zero Product Property to solve the equation $(x+2)(x-4)=0$

Solution:

$(x+2)=0$ *or* $(x-4)=0$

$x=-2$ *or* $x=4$

> The **Zero Product Property** states that if the product of two quantities equal zero, at least one of the quantities must equal zero.

Example 2:

Solve $x^2+4x-12=0$

Solution:

Factor the equation $x^2+4x-12=0$

$(x+6)(x-2)=0$

Use the Zero Product Property to solve the factored equation. $x=-6$ *or* $x=2$

Solve the equations by factoring.

1. $x^2+7x+10=0$

2. $x^2+2x=8$

3. $x^2+8x+15=0$

4. $-x^2=4x+4$

5. $3x^2-2x-1=0$

6. $x^2=-4(2x+3)$

7. $3x^2-8x+4=0$

8. $5x^2+11x+2=0$

9. $2x^2 + 7 = 5 - 5x$

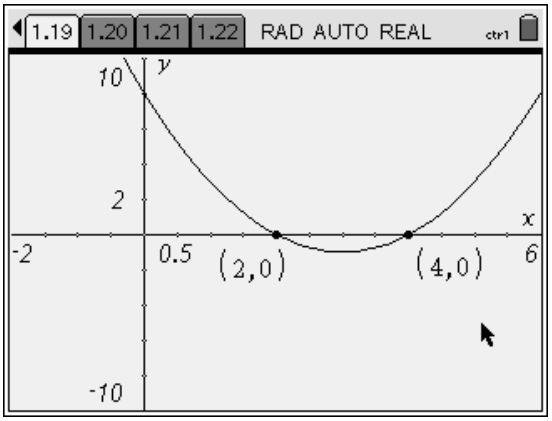
10. $x(x-2) = 35$

11. $10x^2 - 5x + 11 = 9x^2 + x + 83$

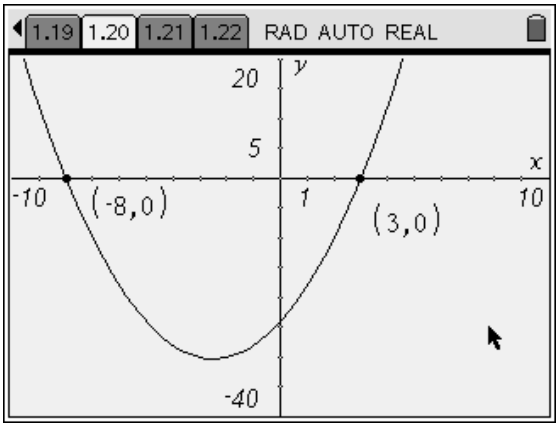
12. $4x^2 + 3x - 12 = 6x^2 - 7x - 60$

13. Give the equation in factored form for each of the following quadratic graphs.

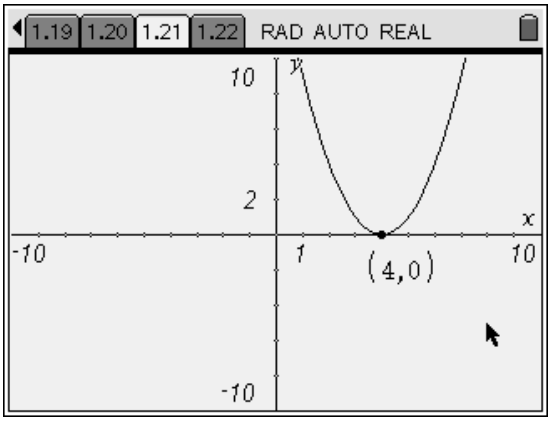
a. _____



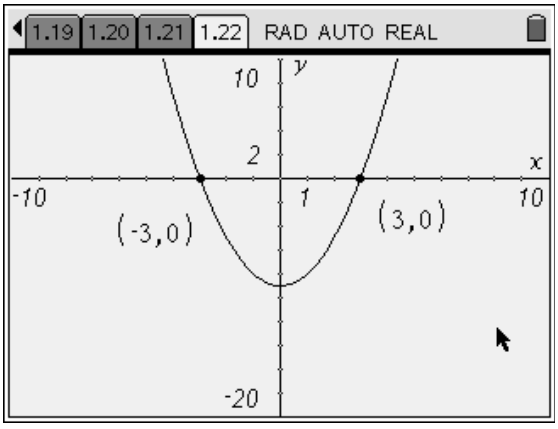
b. _____



c. _____



d. _____



Application Problems

14. The length of a rectangle is 6 inches more than its width. The area of the rectangle is 91 square inches. Find the dimensions of the rectangle.

15. Find two consecutive even positive integers whose product is 120.

16. Recall the area of a circle is given by $A = \pi r^2$, where r is the radius of the circle.

a. If a particular circle is given by $A = \pi(x^2 - 20x + 100)$, find an expression for the radius of the circle.

b. If the area of the circle is 16π square feet, what is the value of x?

17. The hypotenuse of a right triangle is 6 more than the shorter leg. The longer leg is three more than the shorter leg. Find the length of the shorter leg.
Hint: Draw a right triangle and apply the Pythagorean Theorem.