U2D11 MCR 3UI **Family of Functions** HW: Worksheet

WARM UP

1. For what values of k does $kx^2 - 2x + 3 = 0$ have no roots?

2. For what values of k does $3x^2 + kx + 2 = 0$ have two roots?

Family of Functions

1. Find the family of quadratic functions that have roots of -3 and 5. Leave your answer in **standard** form.

2. Determine the standard form equation of a parabola with roots 5 and -1, and goes through the point (-2,14).

3. Determine the equation of the quadratic function in standard form that goes through (2,5) and has zeroes at 0 and -3.

4. Find the standard form equation of a parabola with roots of $x = -1 \pm \sqrt{3}$.

However…… There is another way.

Use the sum/product method.

Consider $y = (x-3)(x+2)$ or

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

sum of roots =

product of roots =

For roots of $x = -1 \pm \sqrt{3}$

sum of roots =

product of roots =

Therefore the quadratic equation is

y =

5. Find the standard form equation of the family of quadratic functions with roots $\frac{2 \pm \sqrt{7}}{3}$.