

## 4.2 Graphing Polynomial Functions

In the last section we learned how to find polynomial characteristics. Now let's put this together to graph. On the test I will ask you to find the zeros, multiplicities, behavior at each zero, turning pts, y-intercept and the graph, and the correct numbers of blanks will be provided. Let's look at some examples.

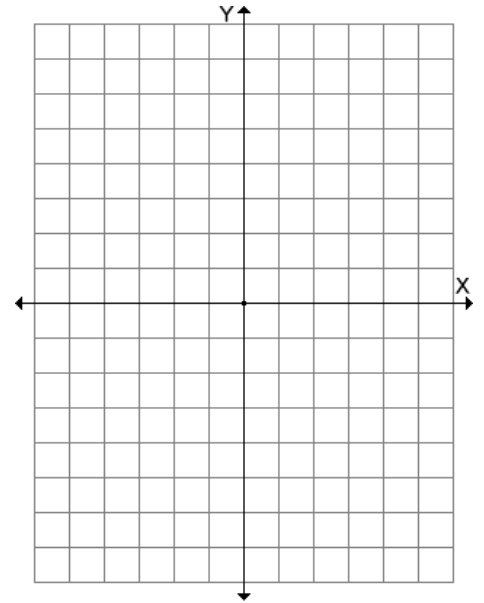
EXAMPLE: Find the following for  $f(x) = x(x - 5)(x + 3)$ .

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

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zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

The graph behaves like \_\_\_\_\_ for large values of  $|x|$ .



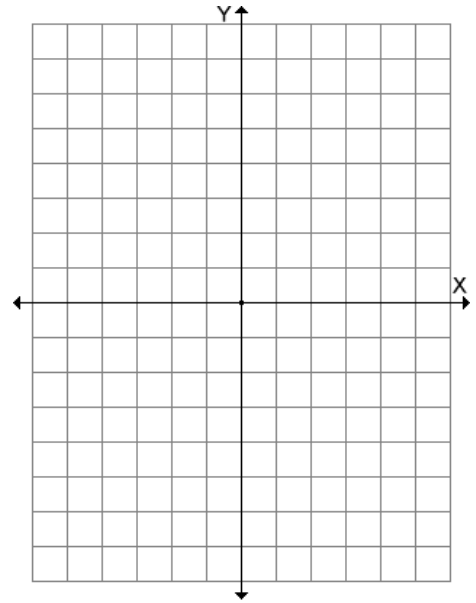
EXAMPLE: Find the zeros, multiplicities, behavior at each zero, turning pts, y-intercept and the graph of  $y = 2(x - 3)^2(x + 4)^2$ .

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

y-int: \_\_\_\_\_ Degree: \_\_\_\_\_ Max turning pts: \_\_\_\_\_

The graph behaves like \_\_\_\_\_ for large values of  $|x|$ .



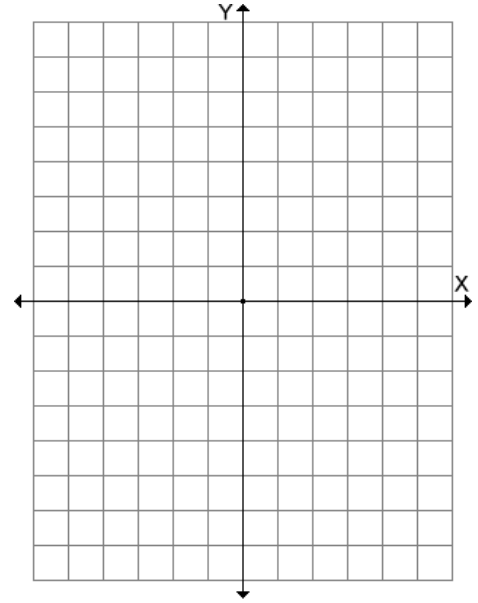
EXAMPLE: Find the zeros, multiplicities, behavior at each zero, turning pts, y-intercept and the graph of  $y = -2x^3(x + 2)$ .

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

y-int: \_\_\_\_\_ Degree: \_\_\_\_\_ Max turning pts: \_\_\_\_\_

The graph behaves like \_\_\_\_\_ for large values of  $|x|$ .



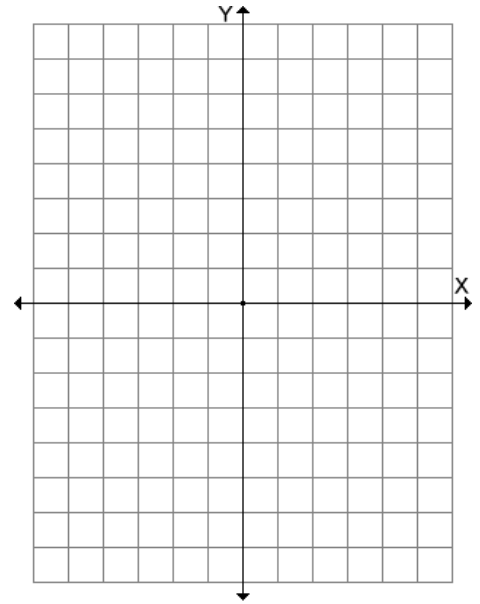
EXAMPLE: Find the zeros, multiplicities, behavior at each zero, turning pts, y-intercept and the graph of  $y = x^3(x - 1.5)^2(x + 1.5)^2$ .

zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

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zero: \_\_\_\_\_ Multiplicity: \_\_\_\_\_ Crosses or touches?

y-int: \_\_\_\_\_ Degree: \_\_\_\_\_ Max turning pts: \_\_\_\_\_



The graph behaves like \_\_\_\_\_ for large values of  $|x|$ .