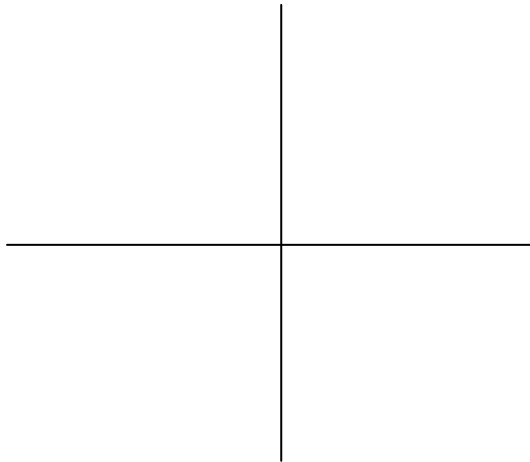


Graphing Polynomial Functions in Factored Form

1. Sketch each function and label the x-intercepts.

a) $y = (x + 2)(x - 5)$



zeroes: _____

degree: _____

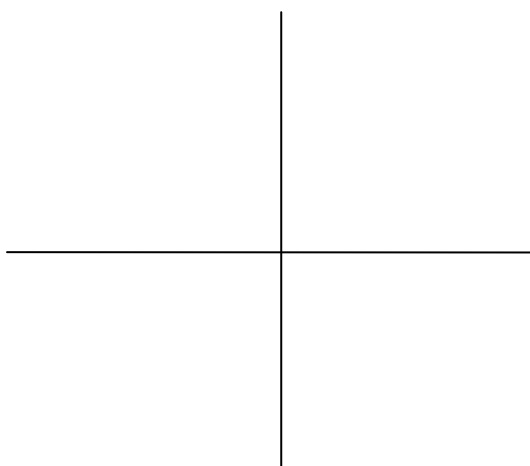
sign of leading coefficient: _____

end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

b) $y = -2(x - 1)^2$



zeroes: _____

degree: _____

sign of leading coefficient: _____

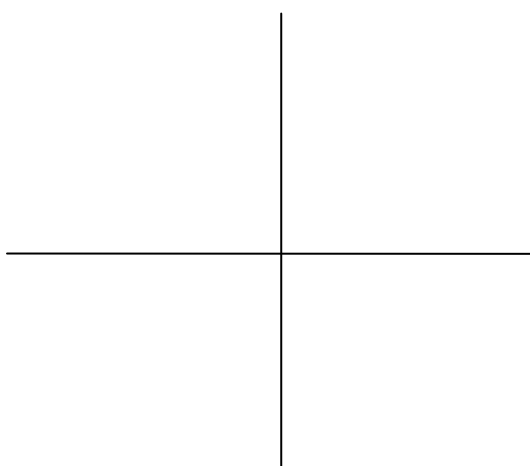
end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

A **double root** _____

c) $y = (x + 2)(x - 1)(x - 2)$



zeroes: _____

degree: _____

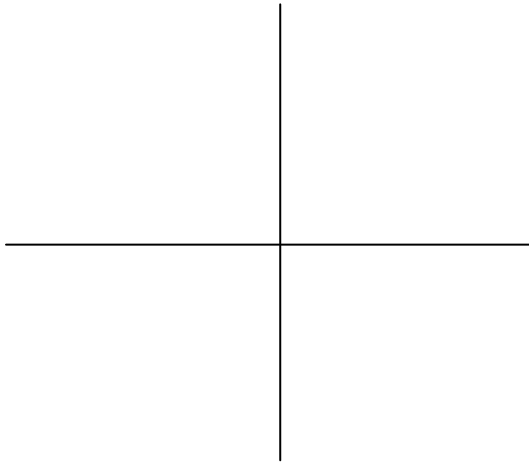
sign of leading coefficient: _____

end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

d) $y = 4(x+3)^2(x-2)$



zeroes: _____

degree: _____

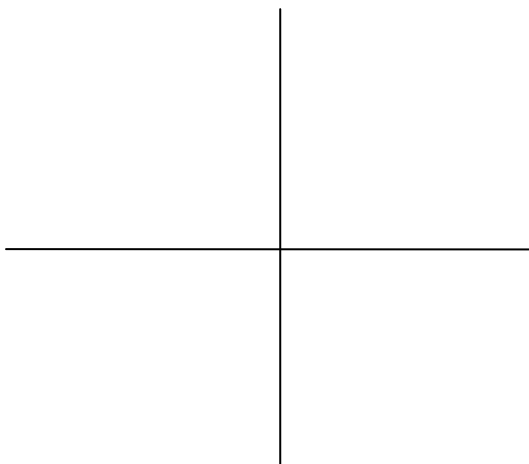
sign of leading coefficient: _____

end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

e) $y = -2(x+5)(x-2)(x-3)(x+1)$



zeroes: _____

degree: _____

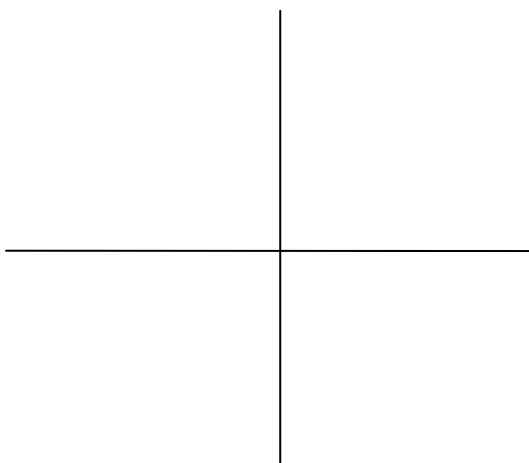
sign of leading coefficient: _____

end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

f) $y = 3(x-1)^2(x+3)(x-2)$



zeroes: _____

degree: _____

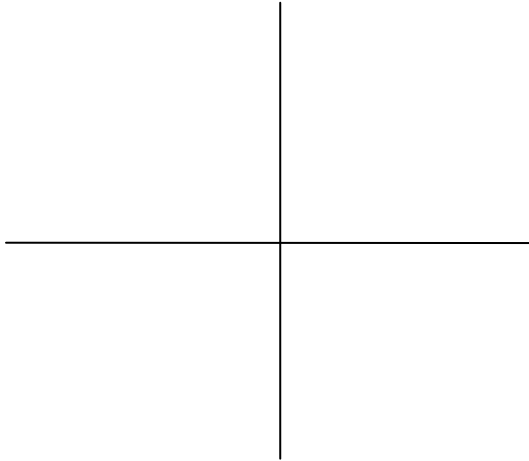
sign of leading coefficient: _____

end behaviours:

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

g) $y = -7(x-3)^3(x+2)^2$



zeroes: _____

degree: _____

sign of leading coefficient: _____

end behaviours:

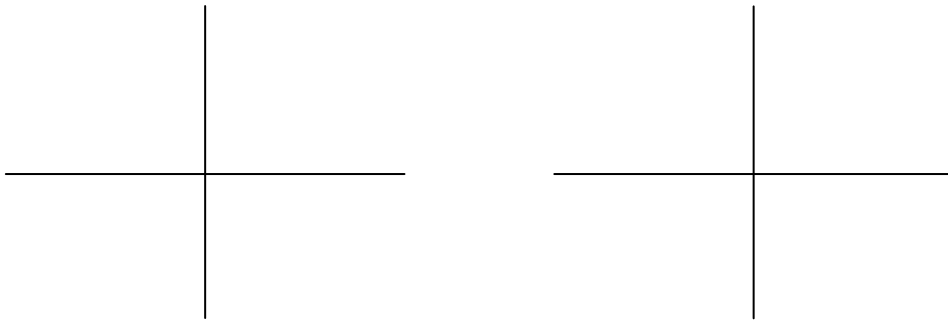
as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

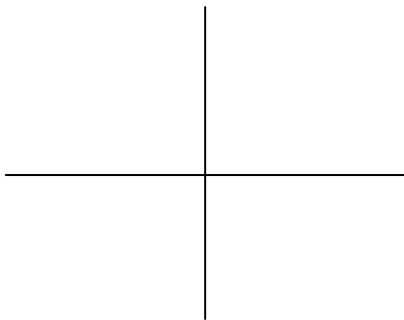
A **triple root** _____

2. Sketch the graph of a polynomial function that satisfies each set of conditions.

a) degree 3, two zeroes, two turning points, positive leading coefficient



b) degree 3, one zero, no turning points, negative leading coefficient



c) degree 4, two zeroes, three turning points, negative leading coefficient

