6.2 Characteristics of Equations of Polynomial Functions p. 384

Name _____

Date _____

> **Goal**: Make connections between the coefficients and constant in the equation of the function and the characteristics of the graph of the function.
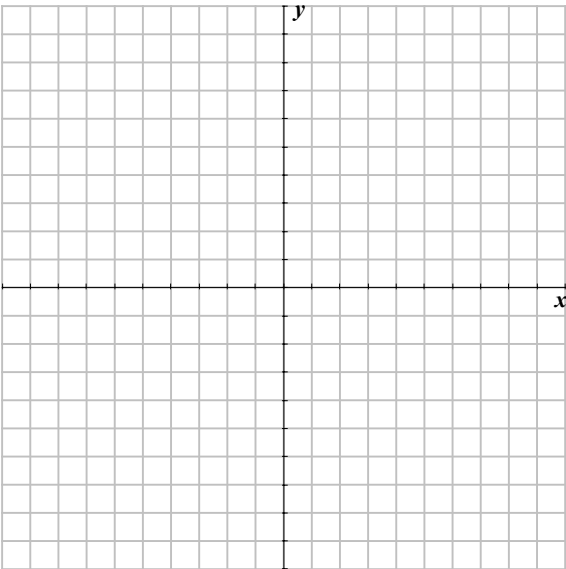
Standard Form ➔ _____

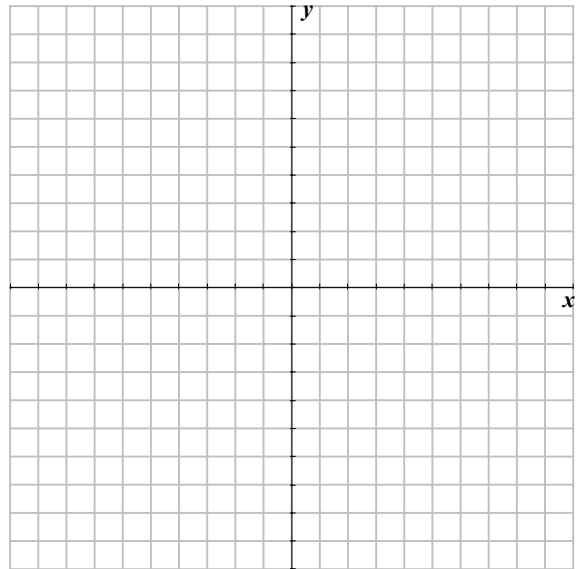---

Standard Form

Leading Coefficient ➔ _____

Constant ➔ _____

Linear Polynomials

$f(x) = \dfrac{3}{4}x - 2$	$f(x) = -2x + 6$

Degree: _____

Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Degree: _____

Number of *x*-intercepts: _____
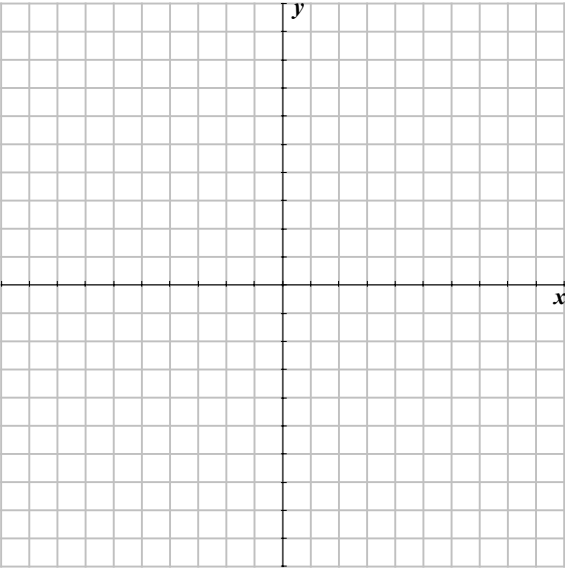
y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Quadratic Polynomials

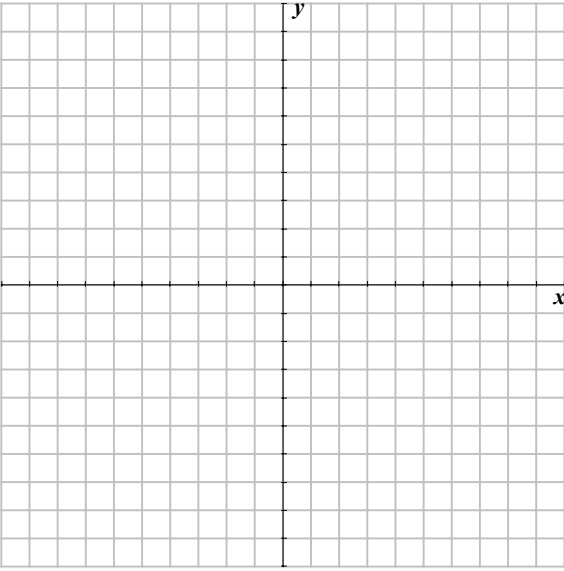| $f(x) = 0.5x^2 + 2x + 5$	$f(x) = -x^2 + 6x - 9$	$f(x) = x^2 - 2x - 3$

Degree: _____

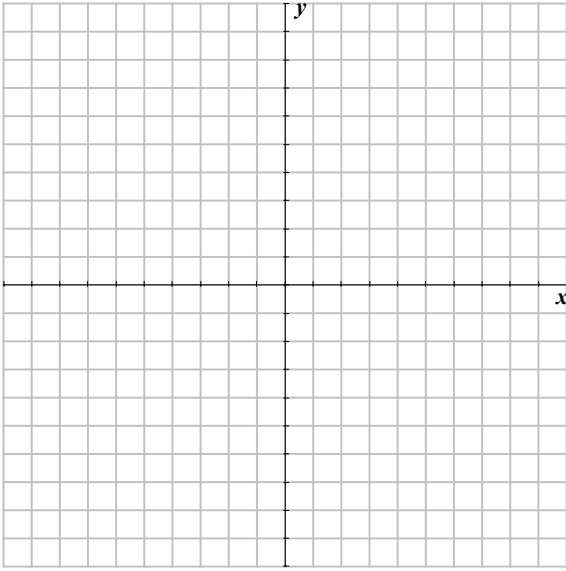Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Degree: _____

Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Degree: _____

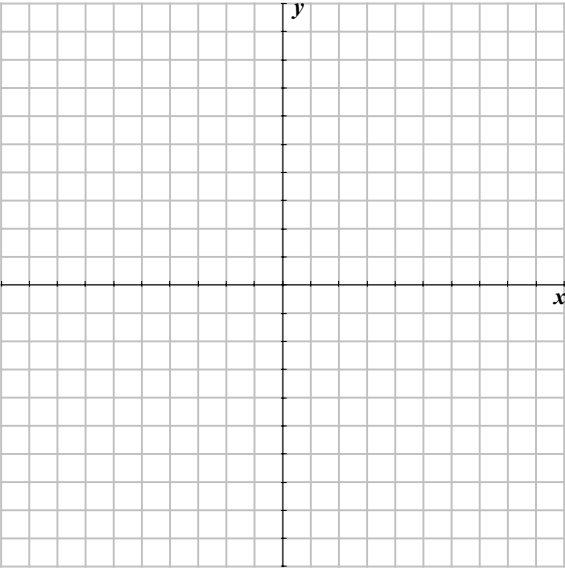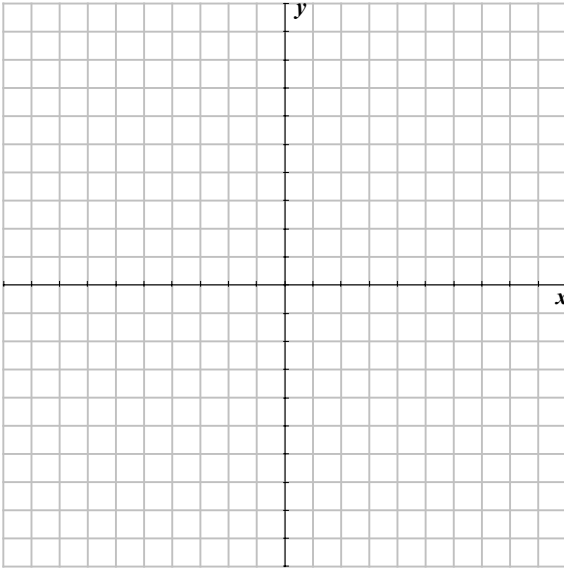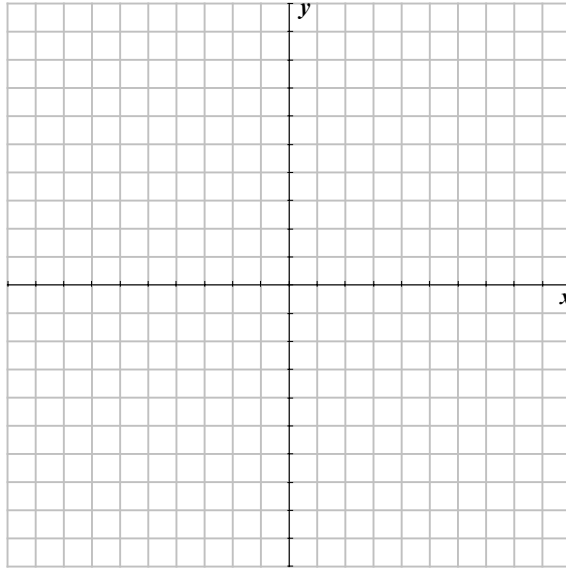Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Cubic Polynomials

$f(x) = x^3$	$f(x) = -x^3 + 2x^2 + 4x - 8$	$f(x) = x^3 + 4x^2 - x - 4$
y / *x*	*y* / *x*	*y* / *x*

Degree: _____

Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Degree: _____

Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Degree: _____

Number of *x*-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Number of Turning Points: _____

End Behaviour: _____

Key Ideas
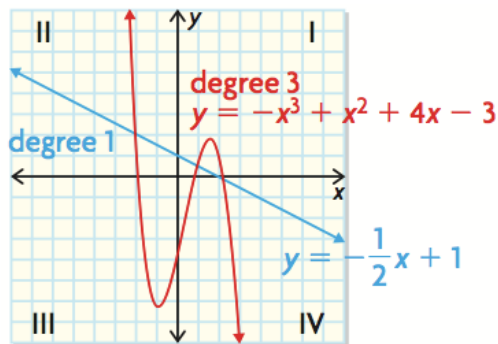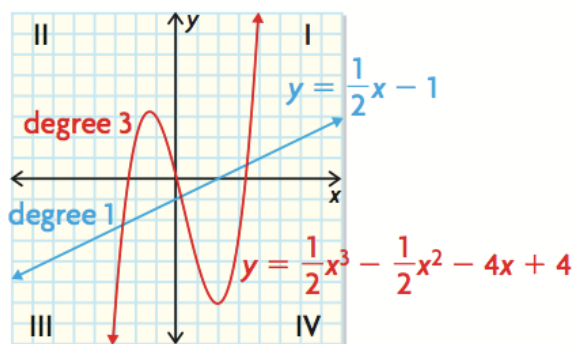
When a polynomial function is in standard form:

- The maximum number of x-**intercepts** the graph may have is _____ to the _____ of the function.

- The maximum number of **turning points** a graph may have is _____ to _____ than the _____ of the function.

- The **degree** and **leading co-efficient** of the equation of a polynomial function indicate the _____ of the graph of the function.

- The constant term in the equation of a polynomial function is the _____ of its graph.

Linear and Cubic polynomial functions have similar end behaviours.	
degree 3, degree 1, $y = \frac{1}{2}x - 1$, $y = \frac{1}{2}x^3 - \frac{1}{2}x^2 - 4x + 4$	degree 3, $y = -x^3 + x^2 + 4x - 3$, degree 1, $y = -\frac{1}{2}x + 1$
Degree: _____	Degree: _____
Leading Co-efficient: _____	Leading Co-efficient: _____
End Behaviour: _____	End Behaviour: _____
Quadratic polynomial functions have different end behaviours to those of linear and cubic.	
degree 2, $y = \frac{1}{2}x^2 - x + 2$	degree 2, $y = -\frac{1}{2}x^2 + \frac{3}{2}x$
Degree: _____	Degree: _____
Leading Co-efficient: _____	Leading Co-efficient: _____
End Behaviour: _____	End Behaviour: _____
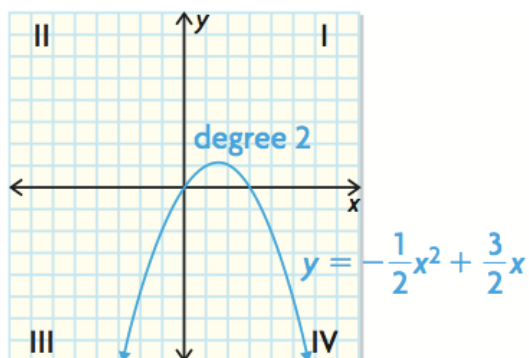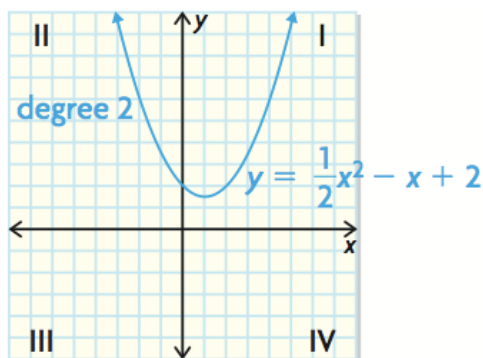
HW 6.2 pp. 393-397 #1, 2, 4, 5, 6, 7, 8 & 14