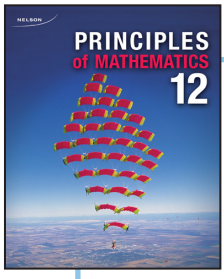


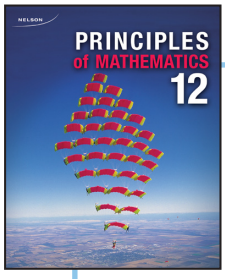
- If you have difficulty with these solutions, please contact your teacher before continuing.

Page 287, *Question 1*

	degree	leading coefficient	constant term
a.	2	6	–2
b.	1	$-\frac{2}{3}$	10
c.	3	–1	6
d.	3	4	–10

Page 294, *Question 1*

	Is this a polynomial?	Reasoning
a.	Yes	The curve is smooth and continuous. This is the graph of a quadratic function.
b.	No	The curve is not continuous; it is split into two parts.
c.	Yes	The curve is smooth and continuous. This is the graph of a constant function.
d.	Yes	The curve is smooth and continuous. This is the graph of a cubic function.
e.	No	The curve is not continuous; it is split into four parts.
f.	No	The curve is not smooth; it comes to a point each time it touches the x-axis.



- If you have any difficulty with these solutions, please contact your teacher before continuing.

Page 288, *Question 5a*

The leading coefficient, 3, is positive and the degree is 3. This indicates the function is a cubic that extends from Quadrant III to Quadrant I. As the x-values decrease, the graph tend towards negative infinity. As the x-values increase, the graph tends towards positive infinity ✓

Page 288, *Question 5b*

The leading coefficient, –1, is negative and the degree is 2. This indicates the function is a quadratic that extends from Quadrant III to Quadrant IV. Because it opens down, both ends tend towards negative infinity. ✓

Page 288, *Question 5c*

Multiply this out to get $h(x) = x^2 + 2x$. The leading coefficient, 1, is positive and the degree is 2. This indicates the function is a quadratic that extends from Quadrant II to Quadrant I. Because it opens up, both ends tend towards positive infinity. ✓

Page 288, *Question 5d*

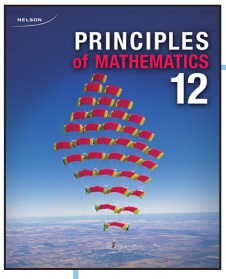
The leading coefficient, –1, is negative and the degree is 3. This indicates the function is a cubic that extends from Quadrant II to Quadrant IV. As the x-values decrease, the graph tends towards positive infinity. As the x-values increase, the graph tends towards negative infinity. ✓

Page 288, *Question 5e*

The leading coefficient, –1, is negative and the degree is 1. This indicates the function is a linear that extends from Quadrant II to Quadrant IV. As the x-values decrease, the graph tends towards positive infinity. As the x-values increase, the graph tends towards negative infinity. ✓

Page 288, *Question 5f*

The leading coefficient, $\frac{3}{2}$, is positive and the degree is 3. This indicates the function is a cubic that extends from Quadrant III to Quadrant I. As the x-values decrease, the graph tends towards negative infinity. As the x-values increase, the graph tends towards positive infinity. ✓

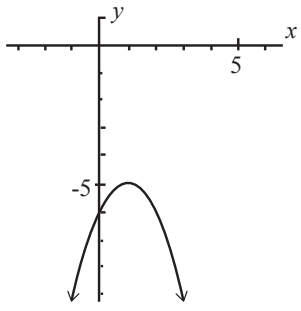


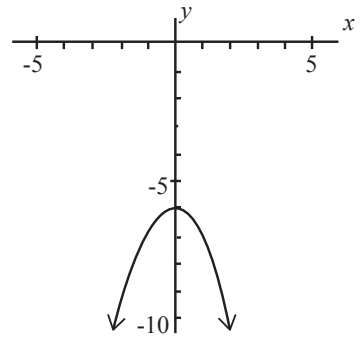
- If you have any difficulty with these solutions, please contact your teacher before continuing.

Answers will vary for Question 10. Contact your teacher to confirm that your answers are correct.

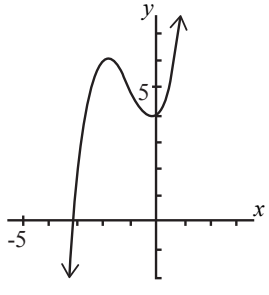
Page 289, *Question 10a*

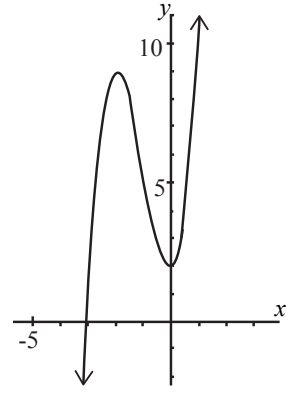
Possible solutions:

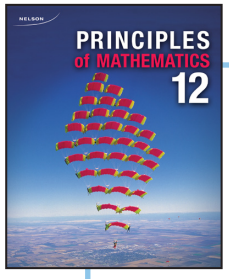




Page 289, *Question 10b*





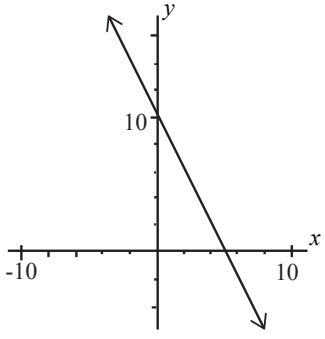


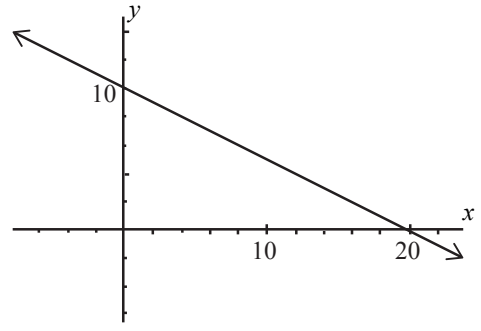
- If you have any difficulty with these solutions, please contact your teacher before continuing.

Answers will vary for Question 10. Contact your teacher to confirm that your answers are correct.

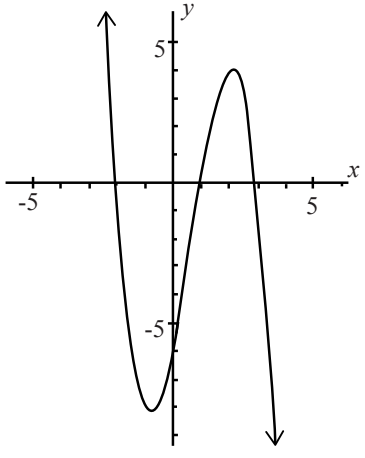
Page 289, *Question 10c*

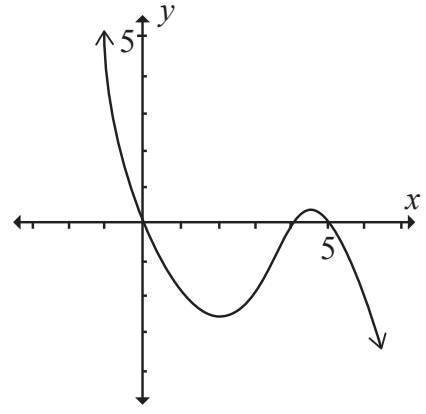
Possible solutions:

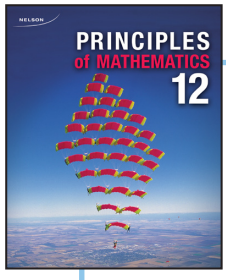




Page 289, *Question 10d*







- If you have any difficulty with these solutions, please contact your teacher before continuing.

Page 288, *Questions 7a – d*

The answers below are based on a visual inspection of the equations only, without graphing.

	number of possible x-intercepts	y-intercepts	end behaviour	domain	range	number of possible turning points
a.	1	5	Extends from Quadrant II to Quadrant IV	$\{x \in R\}$	$\{y \in R\}$	0
b.	0, 1, or 2	–6	Extends from Quadrant II to Quadrant I	$\{x \in R\}$	$\{y \mid y \geq \text{minimum}, y \in R\}$	1
c.	1, 2, or 3	–1	Extends from Quadrant III to Quadrant I	$\{x \in R\}$	$\{y \in R\}$	0 or 2
d.	1, 2, or 3	0	Extends from Quadrant II to Quadrant IV	$\{x \in R\}$	$\{y \in R\}$	0 or 2

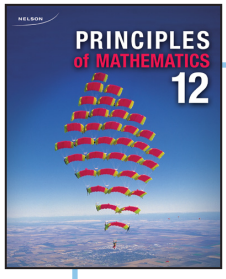
Page 290, *Question 14a*

The answer below is based on a visual inspection of the equation only, without graphing.

The degree is 3; therefore, it is a cubic function. The leading coefficient is positive; therefore, the function is increasing from left to right. The graph extends from Quadrant III to Quadrant I. It has a y-intercept of 25.720 and may have 1, 2, or 3 x-intercepts.

Page 290, *Question 14b*

The constant term represents the y-intercept, which is the price of gas in 1979.



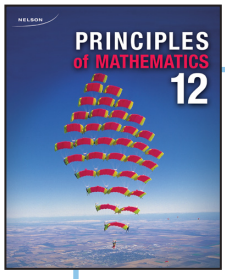
- If you have any difficulty with these solutions, please contact your teacher before continuing.

Page 294, *Question 4a*

	i.	ii.	iii.	iv.
degree	3	2	1	3 ✓✓
***x*-intercept(s)**	5	–1.5 2	7	–1 3 ✓✓
***y*-intercept**	4	–6	2	9 ✓✓
end behaviour	Extends from Quadrant II to Quadrant IV	Extends from Quadrant II to Quadrant I	Extends from Quadrant II to Quadrant IV	Extends from Quadrant III to Quadrant I ✓✓
domain	$\{x \in R\}$	$\{x \in R\}$	$\{x \in R\}$	$\{x \in R\}$ ✓✓
range	$\{y \in R\}$	$\{y \mid y \geq -6, \{x \in R\}$	$\{y \in R\}$	$\{y \in R\}$ ✓✓
number of turning points	2	1	0	2 ✓✓

Page 294, *Question 4b*

	i.	ii.	iii.	iv.
sign of the leading coefficient	negative	positive	negative	positive ✓✓
value of the constant term	4	–6	2	9 ✓✓



- If you have any difficulty with these solutions, please contact your teacher before continuing.

Page 289, *Question 13*

Equation	Graph	Reasoning
i.	a	The equation has a negative leading coefficient, which means the graph is decreasing left to right. The constant term of the equation is 0; so, the graph has a y-intercept of 0.
ii.	d	The equation has a positive leading coefficient, which means the graph is increasing left to right. The constant term of the equation is 3; so, the graph has a y-intercept of 3.
iii.	b	The equation has a negative leading coefficient, which means the graph is decreasing left to right. The constant term of the equation is 3; so, the graph has a y-intercept of 3.
iv.	c	The equation has a positive leading coefficient, which means the graph in increasing left to right. The constant term of the equation is 0; so, the graph has a y-intercept of 0.

Page 294, *Question 2b*

Equation	Graph	Reasoning
i.	d	The equation has degree 3, which means the graph is a cubic. The equation has a positive leading coefficient, which means the graph is increasing left to right. The constant term of the equation is –2; so, the graph has a y-intercept of –2.
ii.	c	The equation has only a constant term. The graph of a constant term is always a horizontal line. This term is 4, which means the graph has a y-intercept of 4.
iii.	a	The equation has a degree 2, which means the graph is a quadratic. The equation has a negative leading coefficient, which means the graph extends from Quadrant III to Quadrant IV. The constant term of the equation is 5; so, the graph has a y-intercept of 5.