

Z3

The function has zeros of -4, -2, and 2.

Z8

The function has zeros of -4, -2, 0, and 2.

Z9

The function has zeros of -2 and 2
(multiplicity 2).

Z4

The function has zeros of -2
(multiplicity 2) and 2 (multiplicity 2).

Z2

The function has zeros of -2
(multiplicity 2) and 2.

Z5

Z10

The function has zeros of -2, 0
(multiplicity 3), and 2.

Z6

The function has zeros of -2, 0
(multiplicity 2), and 2.

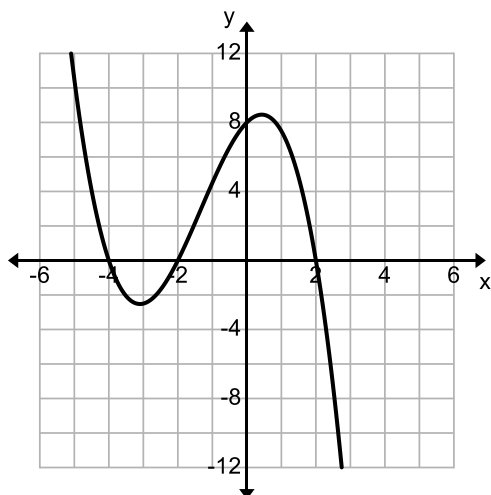
Z7

The function has zeros of -4, -2
(multiplicity 2), and 2.

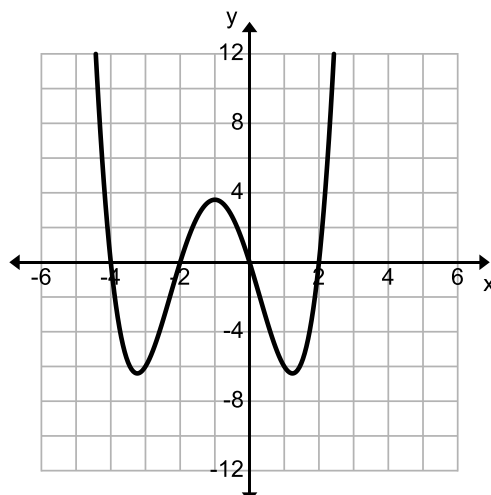
Z1

The function has zeros of -2
(multiplicity 2), 0, and 2 (multiplicity 3).

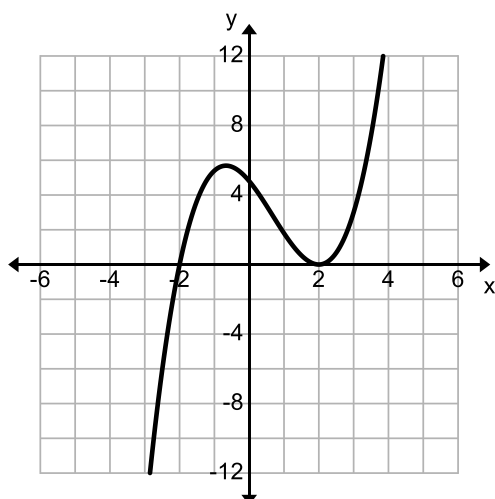
G1 $y = -0.5(x + 4)(x + 2)(x - 2)$



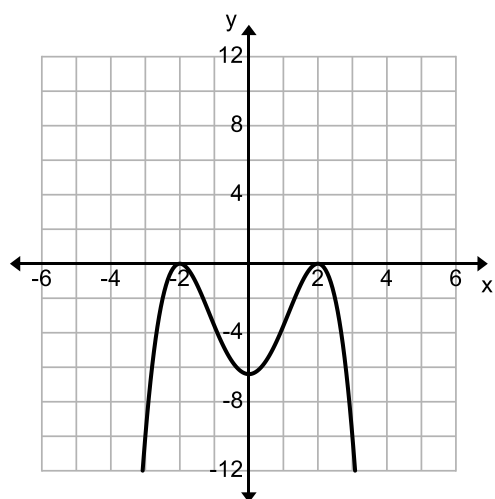
G2 $y = 0.4x(x + 4)(x + 2)(x - 2)$



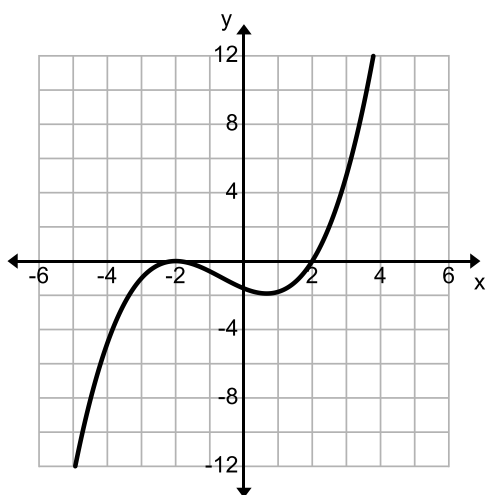
G3 $y = 0.6(x + 2)(x - 2)^2$



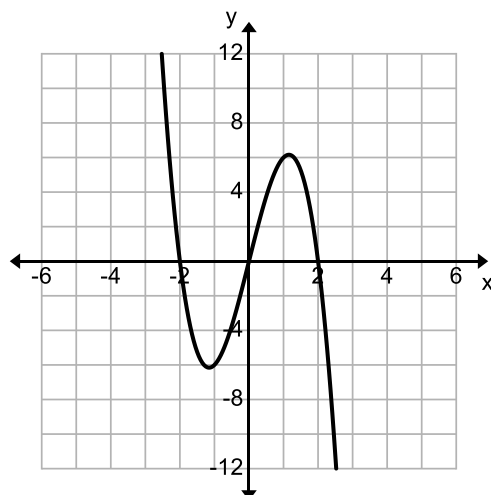
G4 $y = -0.4(x + 2)^2(x - 2)^2$



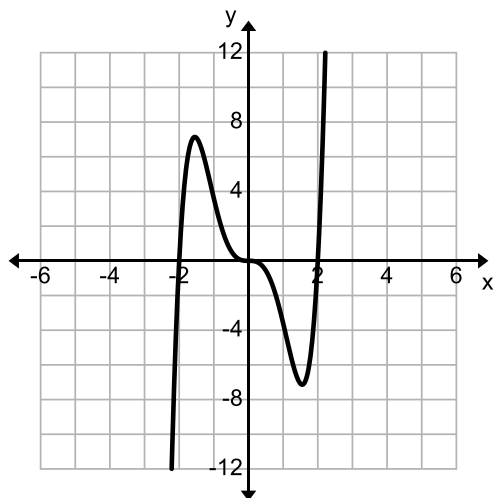
G5 $y = 0.2(x - 2)(x + 2)^2$



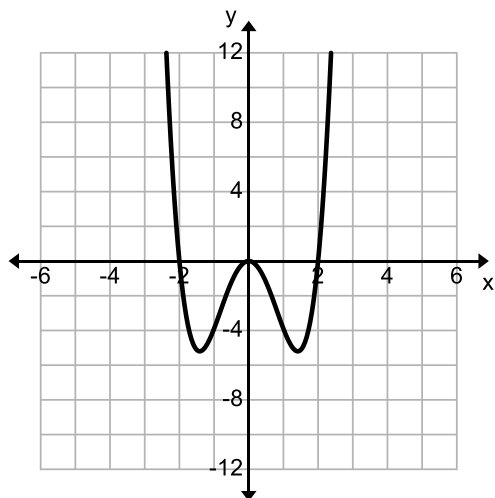
G6 $y = -2x(x + 2)(x - 2)$



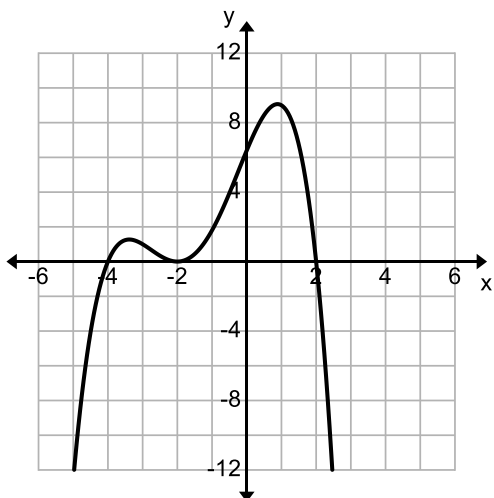
G7 $y = 1.2x^3(x + 2)(x - 2)$



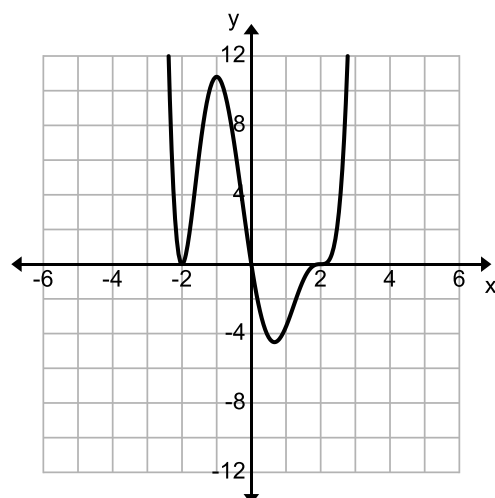
G8 $y = 1.3x^2(x + 2)(x - 2)$



G9 $y = -0.2(x + 4)(x + 2)^2(x - 2)$



G10 $y = 0.4x(x + 2)^2(x - 2)^3$



E6

Third degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow -\infty$;
as $x \rightarrow -\infty, y \rightarrow \infty$.

E7

E4

Third degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow \infty$;
as $x \rightarrow -\infty, y \rightarrow -\infty$.

E2

Fifth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow \infty$;
as $x \rightarrow -\infty, y \rightarrow -\infty$.

E3

Fourth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow -\infty$;
as $x \rightarrow -\infty, y \rightarrow -\infty$.

E5

Fourth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow \infty$;
as $x \rightarrow -\infty, y \rightarrow \infty$.

E10

Fourth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow -\infty$;
as $x \rightarrow -\infty, y \rightarrow -\infty$.

E9

Third degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow -\infty$;
as $x \rightarrow -\infty, y \rightarrow \infty$.

E1

Fourth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow \infty$;
as $x \rightarrow -\infty, y \rightarrow \infty$.

E8

Sixth degree polynomial function
End behavior: as $x \rightarrow \infty, y \rightarrow \infty$;
as $x \rightarrow -\infty, y \rightarrow \infty$.

I4

The function is decreasing over the intervals $(-\infty, -3.1]$ and $[0.4, \infty)$, and increasing over the interval $[-3.1, 0.4]$.

I5

The function is increasing over the intervals $(-\infty, -0.7]$ and $[2, \infty)$, and decreasing over the interval $[-0.7, 2]$.

I1

The function is increasing over the intervals $(-\infty, -2]$ and $[0.7, \infty)$, and decreasing over the interval $[-2, 0.7]$.

I6

I8

The function is increasing over the intervals $(-\infty, -3.4]$ and $[-2, 0.9]$, and decreasing over the intervals $[-3.4, -2]$ and $[0.9, \infty)$.

I10

The function is increasing over the intervals $[-3.2, -1]$ and $[1.2, \infty)$, and decreasing over the intervals $(-\infty, -3.2]$ and $[-1, 1.2]$.

I2

The function is decreasing over the intervals $[-2, 0]$ and $[2, \infty)$, and increasing over the intervals $(-\infty, -2]$ and $[0, 2]$.

I7

The function is decreasing over the intervals $(-\infty, -1.2]$ and $[1.2, \infty)$, and increasing over the interval $[-1.2, 1.2]$.

I3

The function is increasing over the intervals $[-1.4, 0]$ and $[1.4, \infty)$, and decreasing over the intervals $(-\infty, -1.4]$ and $[0, 1.4]$.

I9

The function is increasing over the intervals $[-2, -1]$ and $[0.7, \infty)$, and decreasing over the intervals $(-\infty, -2]$ and $[-1, 0.7]$.

P10

The function is negative on the intervals $(-4, -2)$ and $(2, \infty)$, and positive on the intervals $(-\infty, -4)$ and $(-2, 2)$.

P4

The function is positive on the intervals $(-2, 2)$ and $(2, \infty)$, and negative on the interval $(-\infty, -2)$.

P8

The function is positive on the interval $(2, \infty)$, and negative on the intervals $(-\infty, -2)$ and $(-2, 2)$.

P2

The function is positive on the intervals $(-2, 0)$ and $(2, \infty)$, and negative on the intervals $(-\infty, -2)$ and $(0, 2)$.

P6

The function is positive on the intervals $(-4, -2)$ and $(-2, 2)$, and negative on the intervals $(-\infty, -4)$ and $(2, \infty)$.

P5

P9

The function is negative on the intervals $(-\infty, -2)$, $(-2, 2)$, and $(2, \infty)$. The function is never positive.

P3

The function is negative on the intervals $(-2, 0)$ and $(2, \infty)$, and positive on the intervals $(-\infty, -2)$ and $(0, 2)$.

P7

The function is positive on the intervals $(-\infty, -2)$ and $(2, \infty)$, and negative on the intervals $(-2, 0)$ and $(0, 2)$.

P1

The function is positive on the intervals $(-\infty, -2)$, $(-2, 0)$, and $(2, \infty)$. The function is negative on the interval $(0, 2)$.

SOLUTIONS:

Graph	Zeros	Degree / end behavior	Increasing / decreasing	Positive / negative
G1	Z3	E6 or E9	I4	P10
G2	Z8	E1 or E5	I10	P5
G3	Z9	E4 or E7	I5	P4
G4	Z4	E3 or E10	I2	P9
G5	Z2	E4 or E7	I1	P8
G6	Z5	E6 or E9	I7	P3
G7	Z10	E2	I6	P2
G8	Z6	E1 or E5	I3	P7
G9	Z7	E3 or E10	I8	P6
G10	Z1	E8	I9	P1

BLANK CARDS (solutions)

Z5 The function has zeros of -2, 0, and 2.	E7 Third degree polynomial function End behavior: as $x \rightarrow \infty, y \rightarrow \infty$; as $x \rightarrow -\infty, y \rightarrow -\infty$.
I6 The function is increasing over the intervals $(-\infty, -1.5]$ and $[1.5, \infty)$, and decreasing over the interval $[-1.5, 1.5]$.	P5 The function is positive on the intervals $(-\infty, -4)$, $(-2, 0)$, and $(2, \infty)$. The function is negative on the intervals $(-4, -2)$ and $(0, 2)$.

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