ANSWER PRESENTATION TOOL

2. The function is a polynomial function. Written in standard form, the function is $p(x) = 6x^4 - 4x^3 + \frac{1}{2}x^2 + 3x - 1$. It has degree 4 (quartic) and leading coefficient of 6.

4. The function is a polynomial function. Written in standard form, the function is $g(x) = 13x^2 - 12x + \sqrt{3}$. It has degree 2 (quadratic) and leading coefficient of 13.

6. The function is not a polynomial function because the term $-\frac{5}{x}$ has an exponent that is not a whole number.

8. The function is not a polynomial function. The correct statement is: f is not a polynomial function. The term $-9\sqrt{x}$ has an exponent that is not a whole number.

10.
$$p(x) = -x^5 + 11x^3 + 7$$
$$p(3) = -(3)^5 + 11(3)^3 + 7$$
$$= -243 + 297 + 7$$
$$= 61$$

12. $f(x) = 7x^4 - 10x^2 + 14x - 26$

$f(-7) = 7(-7)^4 - 10(-7)^2 + 14(-7) - 26$

$= 16{,}807 - 490 - 98 - 26$

$= 16{,}193$

14. $g(x) = -x^3 + 3x^2 + 5x + 1$

$g(-12) = -(-12)^3 + 3(-12)^2 + 5(-12) + 1$

$= 1728 + 432 - 60 + 1$

$= 2101$

16. $h(x) = 5x^3 - 3x^2 + 2x + 4$

$h\left(-\frac{1}{3}\right) = 5\left(-\frac{1}{3}\right)^3 - 3\left(-\frac{1}{3}\right)^2 + 2\left(-\frac{1}{3}\right) + 4$

$= -\frac{5}{27} - \frac{1}{3} - \frac{2}{3} + 4$

$= \frac{76}{27}$

18. $w = 0.00583d^3 - 0.0125d^2 + 0.022d - 0.01$

$= 0.00583(12)^3 - 0.0125(12)^2 + 0.022(12) - 0.01$

$= 8.52824$ carats

Based on the model, the weight of an ideal round-cut diamond that has a diameter of 12 millimeters is about 8.53 carats.

20. The function has degree 7 and leading coefficient 7. Because the degree is odd and the leading coefficient is positive, $g(x) \to -\infty$ as $x \to -\infty$ and $g(x) \to +\infty$ as $x \to +\infty$.

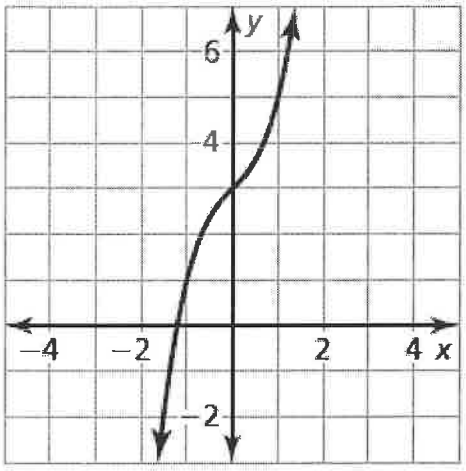
22. The function has degree 5 and leading coefficient -5. Because the degree is odd and the leading coefficient is negative, $f(x) \to +\infty$ as $x \to -\infty$ and $f(x) \to -\infty$ as $x \to +\infty$.

24. The degree of the polynomial is even since both sides of the graph go in the same direction; the leading coefficient of the polynomial is positive since both sides go up.

26. To graph the function, make a table of values and plot the corresponding points. Connect the points with a smooth curve and check the end behavior.

x	-2	-1	0	1	2
$g(x)$	-7	1	3	5	13

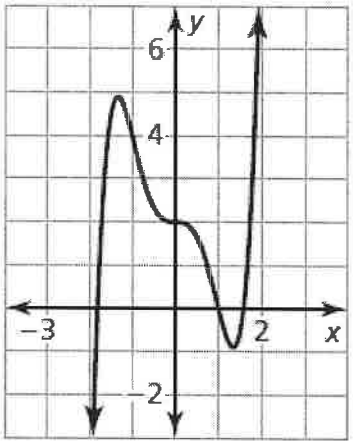
The degree is odd and leading coefficient is positive. So, $g(x) \to -\infty$ as $x \to -\infty$ and $g(x) \to +\infty$ as $x \to +\infty$.



28. To graph the function, make a table of values and plot the corresponding points. Connect the points with a smooth curve and check the end behavior.

x	-2	-1	0	1	2
$p(x)$	-6	4	2	0	10

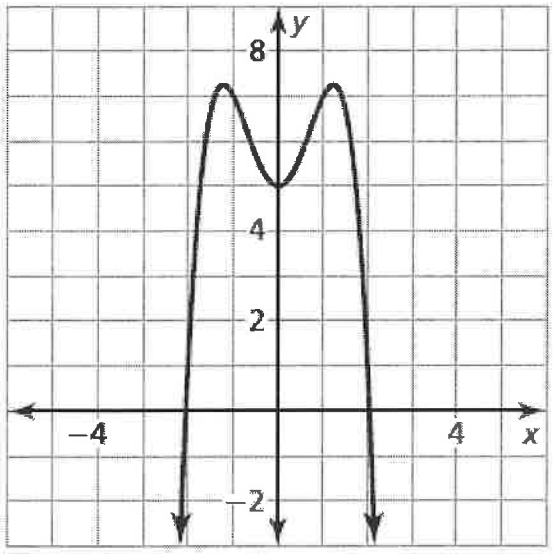
The degree is odd and leading coefficient is positive. So, $p(x) \to -\infty$ as $x \to -\infty$ and $p(x) \to +\infty$ as $x \to +\infty$.



30. To graph the function, make a table of values and plot the corresponding points. Connect the points with a smooth curve and check the end behavior.

x	-2	-1	0	1	2
$h(x)$	1	7	5	7	1

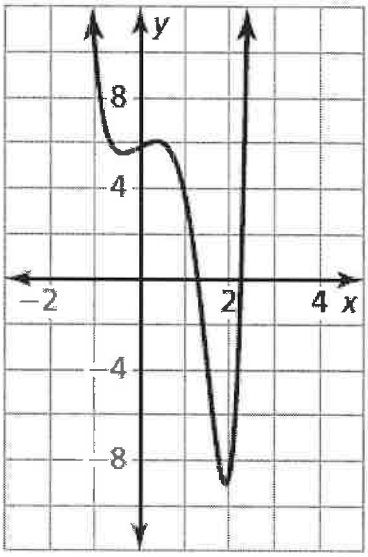
The degree is even and leading coefficient is negative. So, $h(x) \to -\infty$ as $x \to -\infty$ and $h(x) \to -\infty$ as $x \to +\infty$.



32. To graph the function, make a table of values and plot the corresponding points. Connect the points with a smooth curve and check the end behavior.

x	-2	-1	0	1	2
$p(x)$	147	9	5	3	-9

The degree is even and leading coefficient is positive. So, $p(x) \to +\infty$ as $x \to -\infty$ and $p(x) \to +\infty$ as $x \to +\infty$.



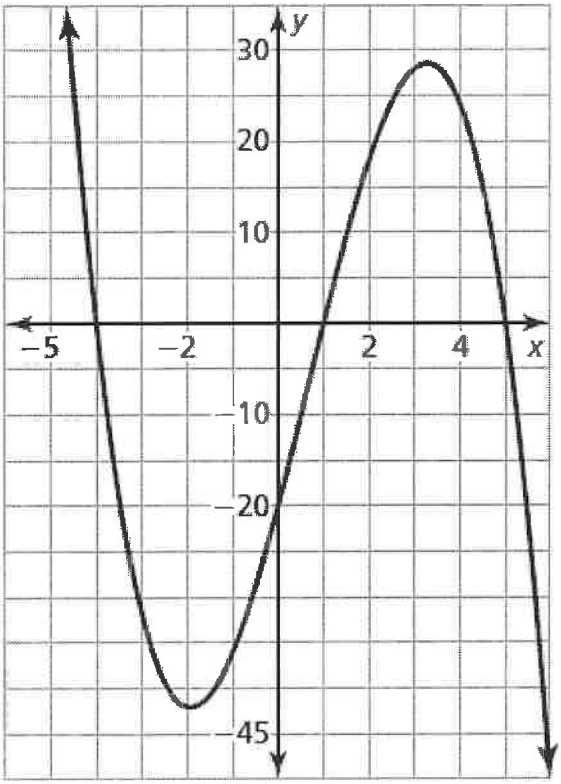
34. **a.** The function is increasing when $x < -1$ and $x > 1$.

b. The function is decreasing when $-1 < x < 1$.

c. The function is positive when $x > 2$.

d. The function is negative when $x < -1$ and $-1 < x < 2$.

36.



The polynomial has an odd degree with a negative leading coefficient.