ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit 4 1 - Practice 1-35 ALL EVEN Show Solu

ODD

1. The function is a polynomial function. Written in standard form, the function is $f(x) = 5x^3 - 6x^2 - 3x + 2$. It has degree 3 (cubic) and leading coefficient of 5.

3. The function is not a polynomial function because the term $-6x^{-2}$ has an exponent that is not a whole number.

5. The function is a polynomial function. Written in standard form, the function is $h(x) = -\sqrt{7}x^4 + 8x^3 + \frac{5}{3}x^2 + x - \frac{1}{2}$. It has degree 4 (quartic) and leading coefficient of $-\sqrt{7}$.

7. The function is not in standard form so the wrong term was used to classify the function. The correct statement is: f is a polynomial function. The degree is 4 and f is a quartic function. The leading coefficient is -7.

9.
$$f(x) = 2x^3 - 5x^2 + 16$$
$$f(-4) = 2(-4)^3 - 5(-4)^2 + 16$$
$$= -128 - 80 + 16$$
$$= -192$$

11. $h(x) = -3x^4 + 2x^3 - 12x - 6$

$$\begin{aligned} h(-2) &= -3(-2)^4 + 2(-2)^3 - 12(-2) - 6 \\ &= -48 - 16 + 24 - 6 \\ &= -46 \end{aligned}$$

13. $g(x) = x^6 - 64x^4 + x^2 - 7x - 51$

$$\begin{aligned} g(8) &= (8)^6 - 64(8)^4 + (8)^2 - 7(8) - 51 \\ &= 262{,}144 - 262{,}144 + 64 - 56 - 51 \\ &= -43 \end{aligned}$$

15. $p(x) = 2x^3 + 4x^2 + 6x + 7$

$$\begin{aligned} p\left(\tfrac{1}{2}\right) &= 2\left(\tfrac{1}{2}\right)^3 + 4\left(\tfrac{1}{2}\right)^2 + 6\left(\tfrac{1}{2}\right) + 7 \\ &= \tfrac{1}{4} + 1 + 3 + 7 \\ &= \tfrac{45}{4} \end{aligned}$$

17. The degree of the polynomial is 0, and it is constant, with a leading coefficient is 13. Moreover, $f(x) \to 13$ as $x \to -\infty$ and $f(x) \to 13$ as $x \to +\infty$, because the y-values are always 13.

19. The function has degree 4 and leading coefficient -5. Because the degree is even and the leading coefficient is negative, $h(x) \to -\infty$ as $x \to -\infty$ and $h(x) \to -\infty$ as $x \to +\infty$.

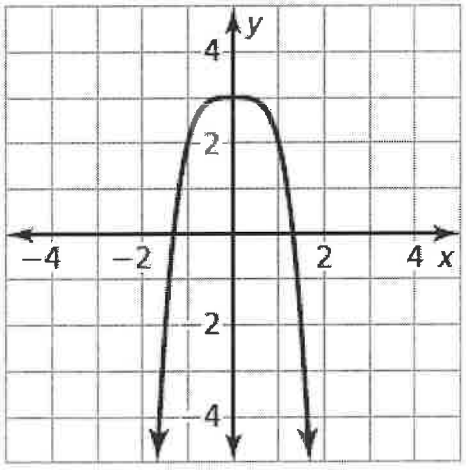
21. The function has degree 8 and leading coefficient 12. Because the degree is even and the leading coefficient is positive, $f(x) \to +\infty$ as $x \to -\infty$ and $f(x) \to +\infty$ as $x \to +\infty$.

23. The degree of the polynomial is odd since one side goes up and the other goes down; the leading coefficient is negative since the left side goes up and the right side goes down.

25. 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
$p(x)$	-13	2	3	2	-13

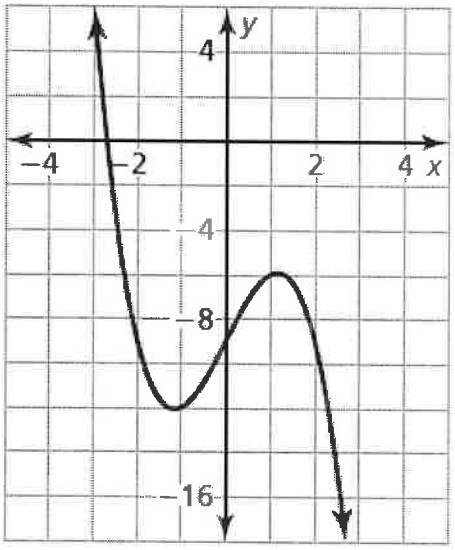
The degree is even and leading coefficient is negative. So, $p(x) \to -\infty$ as $x \to -\infty$ and $p(x) \to -\infty$ as $x \to +\infty$.



27. 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
$f(x)$	-9	-12	-9	-6	-9

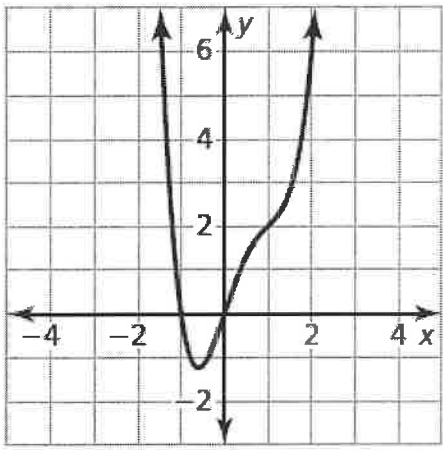
The degree is odd and leading coefficient is negative. So, $f(x) \to +\infty$ as $x \to -\infty$ and $f(x) \to -\infty$ as $x \to +\infty$.



29. 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
$h(x)$	26	0	0	2	6

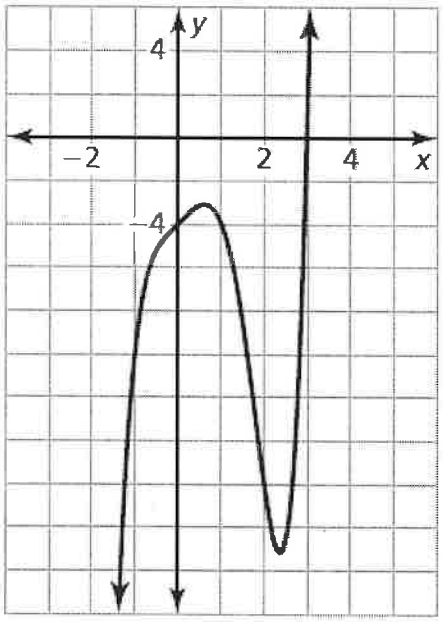
The degree is even and leading coefficient is positive. So, $h(x) \to +\infty$ as $x \to -\infty$ and $h(x) \to +\infty$ as $x \to +\infty$.



31. 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
$g(x)$	-88	-10	-4	-4	-16

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



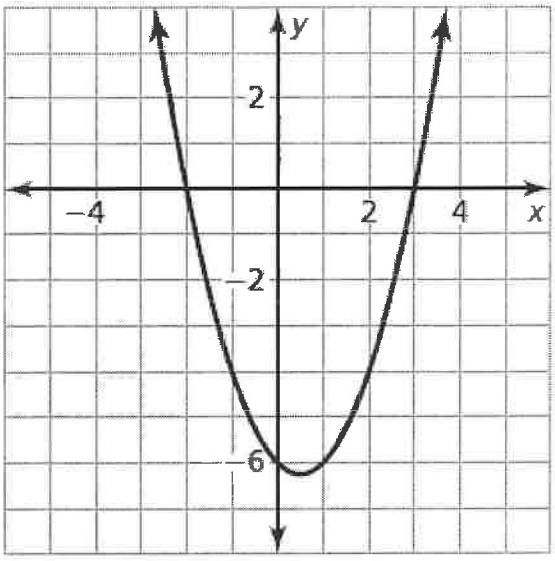
33. **a.** The function is increasing when $x > 4$.

b. The function is decreasing when $x < 4$.

c. The function is positive when $x < 3$ and $x > 5$.

d. The function is negative when $3 < x < 5$.

35.



The polynomial has an even degree with a positive leading coefficient.