

31 The formula for the sum of the degree measures of the interior angles of a polygon is $S = 180(n - 2)$. Solve for n , the number of sides of the polygon, in terms of S .

$$S = 180(n - 2)$$

$$\begin{array}{r} S = 180n - 360 \\ +360 \qquad \qquad \qquad +360 \\ \hline \end{array}$$

$$\frac{360 + S}{180} = \frac{180n}{180}$$

$$\boxed{\frac{360 + S}{180} = n}$$

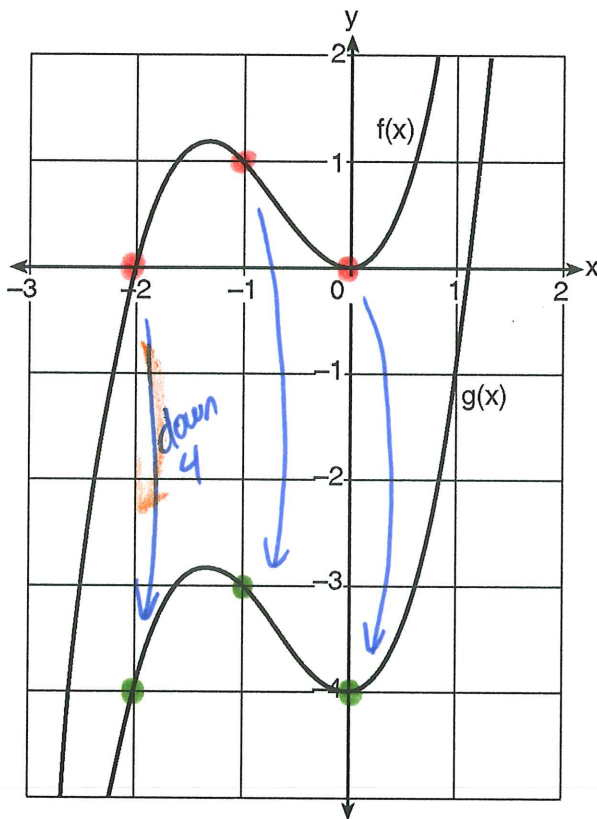
OR

$$\boxed{2 + \frac{S}{180} = n}$$

32 In the diagram below, $f(x) = x^3 + 2x^2$ is graphed. Also graphed is $g(x)$, the result of a translation of $f(x)$.

$f(x)$

x	y
2	8
-2	0
-1	1
0	0



$g(x)$

x	y
-2	-4
-1	-3
0	-4

Determine an equation of $g(x)$. Explain your reasoning.

$$g(x) = f(x) - 4$$

OR

$$g(x) = x^3 + 2x^2 - 4$$

Since the graph of $g(x)$ is the graph of $f(x)$ translated down 4 units,

the equation of $g(x) = f(x) - 4$.

$\underbrace{\hspace{2em}}$
 down 4

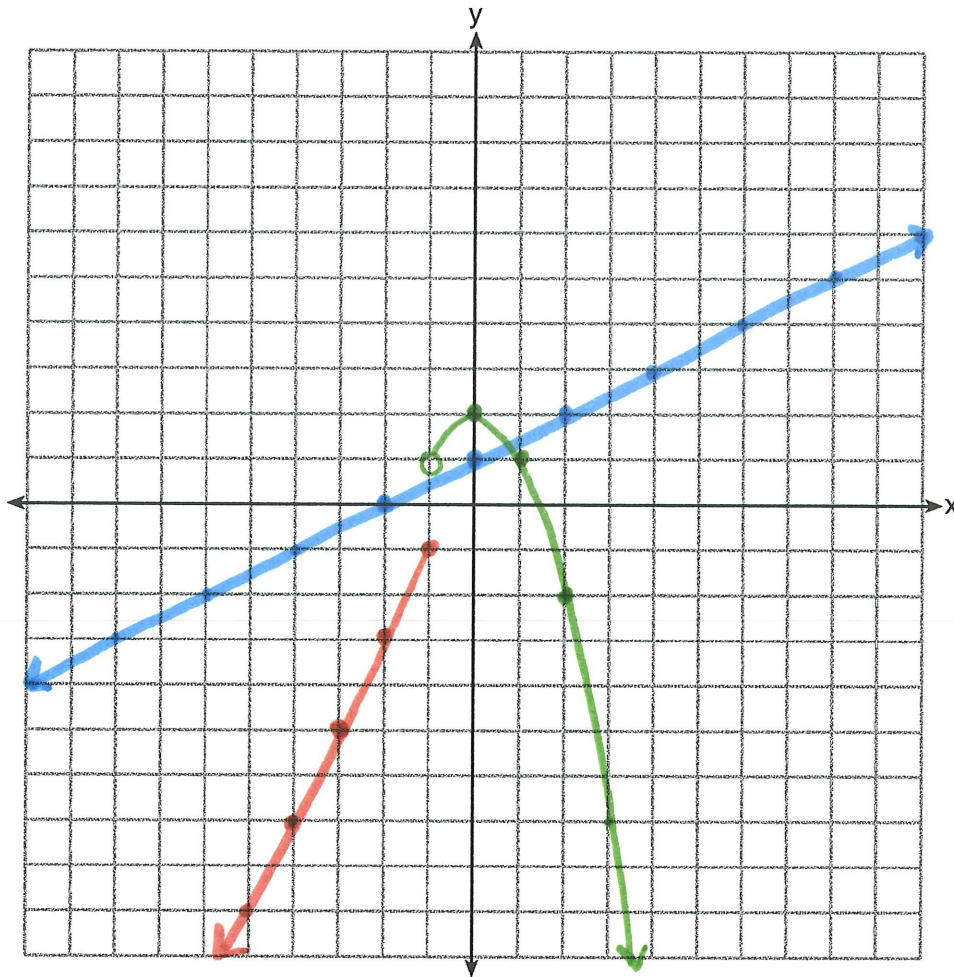
36 On the set of axes below, graph

$$g(x) = \frac{1}{2}x + 1$$

and

$$f(x) = \begin{cases} 2x + 1, & x \leq -1 \\ 2 - x^2, & x > -1 \end{cases}$$

$f(x)$	
x	y
-3	-5
-2	-3
-1	-1
-1	0
0	2
1	1
2	-2



$g(x)$	
x	y
-2	0
0	1
2	2

How many values of x satisfy the equation $f(x) = g(x)$? Explain your answer, using evidence from your graphs.

Only 1 value of x satisfies the equation $f(x) = g(x)$ because $g(x)$ only crosses $f(x)$ once in the graph.