


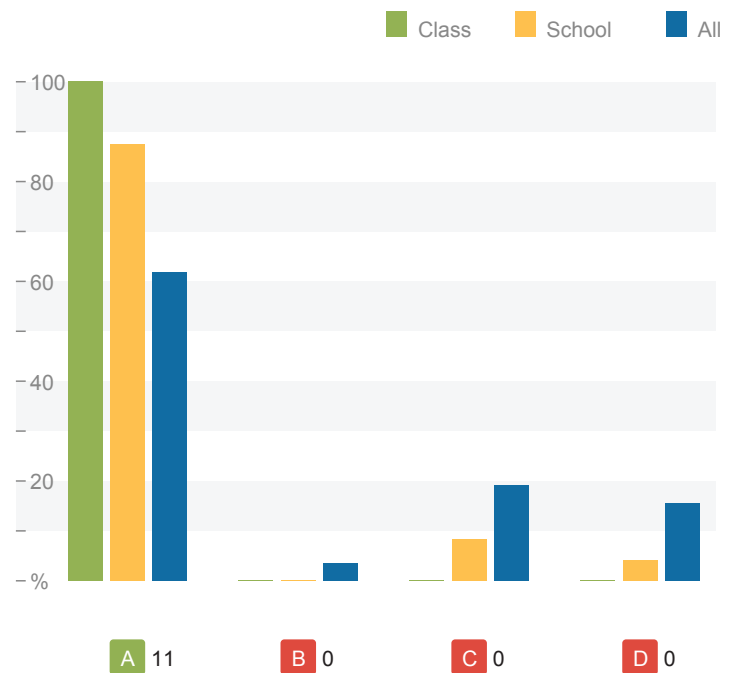
### Students' Results

What is an expression for the perimeter of this shape?



a)  $6x + 2$                       b)  $8x$

c)  $2x^2 + x$                       d)  $3x + 1$



ATTEMPTS: 11 out of 20 students answered this question

### Top Explanations

**A**

I think this a to find the perimeter you add up the lengths of all the sides, to know the left side we know its x as its parallel with the other side that's x and then the same goes for the bottom one which is  $2x+1$ . so to find the perimeter of this rectangle I did  $x + x + 2x+1 + 2x+1 = 6x + 2$

**A**

you have to add x and x together to make 2x then you add  $2x+2x$  together to make 4x, then you add 4x to 2x and this makes 6x finally you add the 1 and 1 together to make 2 add that to 6x and you have  $6x+2$

**A**

There are four sides on this shape. The same again the two length sides are the same and the two width sides are the same also. So the expression is going to be  $x+x+2x+1+2x+1$ , when simplified down you add all of the x's together meaning you get 6x and then you add both ones which gets you 2, so your final answer is  $6x+2$

**B**

$(2x + 1) \times 2 = 4x + 2,$   
 $(x) \times 2 = 2x,$   
 $4x + 2 = 6x,$   
 $6x + 2x = 8x$

**C**

because you are multiplying them all together,  $2x \times x = 2x^2$ .  $1 \times x = 1x$ . You can not add  $1x$  to  $2x^2$  because  $1x$  is not squared however you could if you were multiplying.

**D**

I think it is this because you add the X onto the 2x to get 3X then you add 1 to get  $3X + 1$



# Students' Explanations

NAME	ANSWER	EXPLANATION
GEORGIABARNES	A	Because $2x+1$ x2 is $4x+2$ and then add $2x$ for the other 2 sides
CHLOEBREEN	A	
BETHANYCARTER	A	all sides added together
JOSEPHINE CLEARY	A	Two sides are $2x + 1$ and two sides are $x$ so in total that's $2x + 1 + 2x + 1 + x + x = 2x + 2x + x + x + 1 + 1 = 6x + 2$
CAITLINDREW	A	Add up the lengths of all sides to find the perimeter
ADAM GOGGINS	A	
OLIVIAMCQUAID	A	$2x+2x+x+x=6x$
TIMOTHY MONTEVERDE	A	Add up all sides
JENNIFERMURPHY	A	YOudo $2x + 1 + 2x + 1 + x + x$
Tom Nguyen	A	$2x+1+2x+1+x+x=6x+2$
KARLSHERMAN	A	all sides added together
HANNAHCHUNG		
KELSEYCOOLEY		
KURTISDAVIES		
JORDANHINDLEY		
KIELMALPASS		

# Students' Explanations

NAME

ANSWER

EXPLANATION

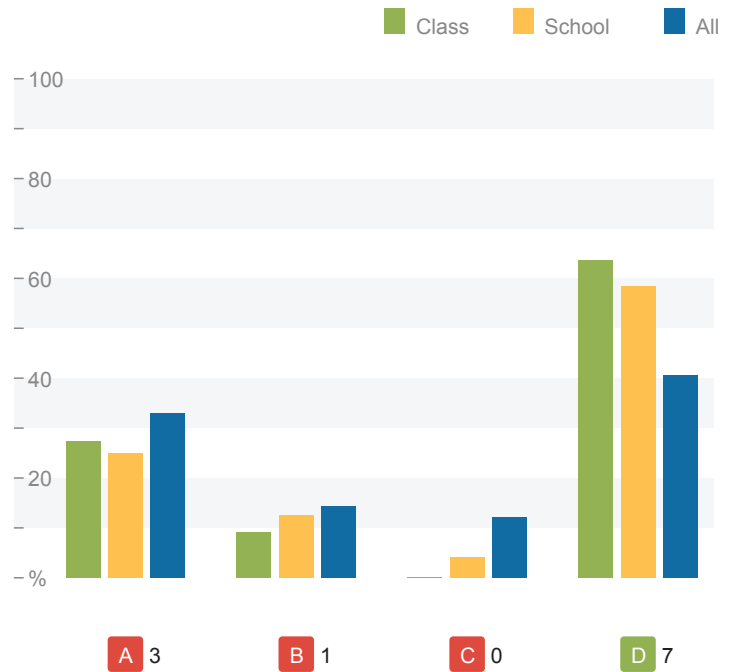
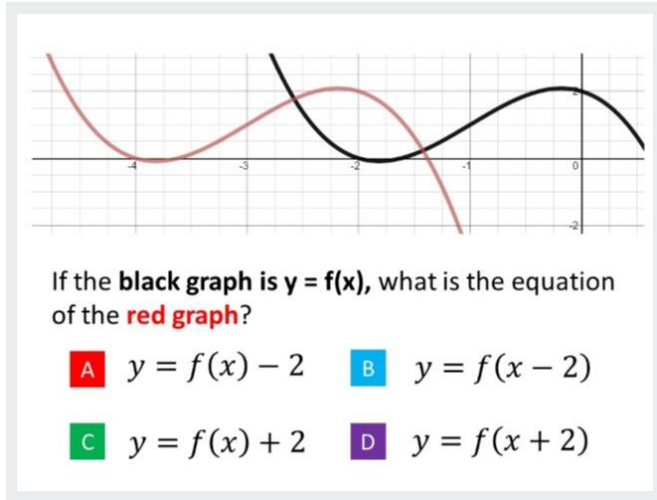
MATTHEW  
MCARDLE

CAL MCCULLOCH

ELLIE ROBERTS

Test Student

### Students' Results



### Top Explanations

**D**  
Kodie told me

**D**  
When you add something on inside the brackets the graph moves left/right, when you add something on outside the brackets the graph moves up/down. When you add a positive number outside the brackets the graph moves left, if the number is negative it moves right. Here the graph has moved 2 to the left so it's  $f(x)+2$

**D**  
Because it's two behind the other graph so add to to make it equal I think

**A**  
 $f = -2$   
to get from -2 to 2 you have to times by -1 for the red graph,  $f = -4$ .  
if  $x$  is -1, that means that  $-4 \times -1 = 4$   
however, the red graph hits 2, so you need to -2.  
 $-4(-1)-2$

**B**  
change in the  $x$  axis and has moved 2 spaces back

**C**  
A positive number moves the graph left



# Students' Explanations

NAME	ANSWER	EXPLANATION
CHLOEBREEN	A	
CAITLINDREW	A	
OLIVIAMCQUAID	A	
BETHANYCARTER	B	change in the x axis and has moved 2 spaces back
GEORGIABARNES	D	
JOSEPHINE CLEARY	D	When you add something on inside the brackets the graph moves left/right, when you add something on outside the brackets the graph moves up/down. When you add a positive number outside the brackets the graph moves left, if the number is negative it moves right. Here the graph has moved 2 to the left so it's $f(x)+2$
ADAM GOGGINS	D	
TIMOTHY MONTEVERDE	D	Out of brackets would move it up
JENNIFERMURPHY	D	It has gone two to the left so instead of -2 it is plus 2
Tom Nguyen	D	All the values of x have been translated by -2,0
KARLSHERMAN	D	+ means it shifts back
HANNAHCHUNG		
KELSEYCOOLEY		
KURTISDAVIES		
JORDANHINDLEY		
KIELMALPASS		

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ANSWER

EXPLANATION

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