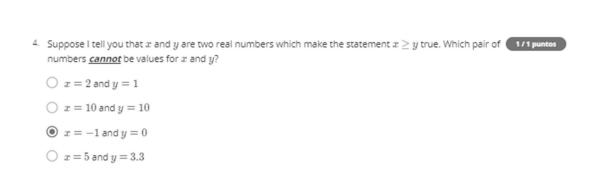


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100 %

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

100%	N DEL ULTIMO ENVIO	
1. Let <i>B</i> Tru Fal		1/1 puntos
~	$\label{eq:correcto} \text{The symbol} \notin stands for "is not an element of." Since 3 is in an element of the set B, the given statement is not true.$	
to the	$=\{1,3,5\}$ and $B=\{3,5,10,11,14\}$. Which of the following sets is equal union $A\cup B$?	1/1 puntos
○ {3 ③ {1	,10,18} ,5,10,11,14} ,3,5,10,11,14} ,3,5,3,5,10,11,14}	
~	Correcto The union of two sets consists precisely of the elements that are in at least one of the two sets. That is precisely what is listed here.	
O No	nany real numbers are there between the integers 1 and 4 ? one	1/1 puntos
~	Correcto There are in fact infinitely many real numbers between any pair of distinct integers, or indeed any pair of distinct real numbers!	





Recall that the statement $x \geq y$ means that x is either equal to y or x is to the right of y on the real number line. Since -1 is actually to the left of 0, these cannot be values for x and y.

5. Suppose that z and w are two positive numbers with z < w. Which of the following inequalities is false?

1/1 puntos

$$\bigcirc \ w-7>z-7$$

$$\bigcirc -z > -w$$

$$\bigcirc z + 3 < w + 3$$

$$\bigcirc$$
 $-5z < -5w$

. / Correct

If we start with z < w and multiply both sides by -5, we need to flip the less-than sign, which would give -5z > -5w. For an example, try z=1 and y=2 and see what happens!

6. Find the set of all x which solve the inequality $-2x+5 \leq 7$

1/1 puntos

$$\bigcirc x \le -1$$

$$\bigcirc x \ge -6$$

$$\bigcirc \ x = -1$$

✓ Correcto

Subtracting 5 from both sides of the given inequality gives $-2x\leq 2.$ Then we divide both sides by -2, remembering to flip the inequality sign, and we obtain this answer

7. Which	h of the following real numbers is not in the closed interval $\left[2,3 ight]$	1/1 puntos
① 1		
O 2	.1	
O 2		
O 3		
~	Recall that the closed interval $[2,3]$ consists of all real numbers x which satisfy $2\leq x\leq 3$. Since $2\leq 1$ is false, $1\notin [2,3]$	
8. Which	h of the following intervals represents the set of all solutions to:	1/1 puntos
-5 ≤	$\leq x+2 < 10$?	
0 [-	-7, 8]	
• [-	-7,8)	
0 [-	-5, 10)	
0 (7	7,8)	
~	Subtracting 2 from all sides of the inequalities gives $-7 \le x < 8$, and the set of all real numbers x which make that true is exactly the half-open interval $[-7,8)$.	
9. Which	h of the numbers below is equal to the following summation: $\Sigma_{k=2}^52k$?	1/1 puntos
O 1	0	
O 1	4	
O 4		
② 28	8	
	Correcto	
~	We compute $\Sigma_{k=2}^{5}2k=4+6+8+10=28.$	

10. Suppose we already know that $\Sigma_{k=1}^{20}k=210$. Which of the numbers below is equal to $\Sigma_{k=1}^{20}2k$?				
	420			
	○ 40			
	○ 210			
	O 2			
	Correcto By applying one of our Sigma notation simplification rules, we can rewrite the summation in question as $2\left(\Sigma_{k=1}^{20}k\right)=2\times210=420.$			
$^{11.}$ Which of the numbers below is equal to the summation $\Sigma_{i=2}^{10}$ 7 ?				
	○ 70			
	O 7			
	63			
	○ 48			
	$\begin{tabular}{ll} \checkmark Correcto \\ According to one of our Sigma notation simplification rules, this summation is just equal to 9 \\ copies of the number 7 all added together, and so we get 9\cdot 7=63.$			
12.	Which of the following numbers is the variance of the set $Z=\{-2,4,7\}$?	1/1 puntos		
	14			
	O 42			
	\bigcirc $\sqrt{14}$			
	O 69			
	✓ Correcto To get the variance of a set of numbers, you need to perform four steps:			
	First compute the mean (which is 3)			
	Then calculate all the squared differences between the numbers in the set and this mean (here you get $25,1,16$)			
	Then add all these up (here you get 42)			
	Then divide by the number of elements in the set (which is 3).			

$$= \frac{1}{3} [(-2-3)^2 + (4-3)^2 + (7-3)^2]$$
$$= \frac{1}{3} [25+1+16] = \frac{42}{3} = 14$$

13. Which of the following sets does not have zero variance? (hint: don't do any calculation here, just think!)

1/1 number

- $\bigcirc \ \{0,0,0,0,0,0,0\}$
- $\bigcirc \ \{5,5,5,5,5,5,5,5,5,5,5,5,5,5\}$
- $\bigcirc \ \{1,1,1,1\}$
- \bigcirc {2, 5, 9, 13}



Intuitively, the numbers in this set are spread out.