Absolute Value: Analytic View Practice 1

This gives practice for understanding the absolute value analytically.

Problem 1 *Consider the following absolute value expression:*

$$|-4\,x+2|+x+2$$

Fill in the missing pieces of the following piecewise definition

$$|-4\,x+2|+x+2=\begin{cases}\boxed{-3\,x+4} & x<\boxed{\frac{1}{2}}\\ \boxed{5\,x} & x\geq\boxed{\frac{1}{2}}\end{cases}$$

Feedback(attempt): *Begin by finding where the content inside the absolute value equals zero. Do this by setting the part inside the absolute value (i.e.* $-4\,x+2$*) equal to zero and solve. That value will be the pivot point, i.e. the value that you use in the right most column of domain values.*

For the set of x-values where the function side the absolute value is negative, you want to replace the absolute value bars with parentheses and put a negative out front (as explained in the lecture video). For the domain where the inside is positive, you can replace the absolute value bars with parentheses. This is how you get the functions for the piecewise definition.

Problem 2 *Consider the following absolute value expression:*

$$|-4\,x-2|+-3\,x-1$$

Fill in the missing pieces of the following piecewise definition

$$|-4\,x-2|+-3\,x-1=\begin{cases}\boxed{-7\,x-3} & x<\boxed{-\frac{1}{2}}\\ \boxed{x+1} & x\geq\boxed{-\frac{1}{2}}\end{cases}$$

Feedback(attempt): *Begin by finding where the content inside the absolute value equals zero. Do this by setting the part inside the absolute value (i.e.* $-4\,x-2$*) equal to zero and solve. That value will be the pivot point, i.e. the value that you use in the right most column of domain values.*

For the set of x-values where the function side the absolute value is negative, you want to replace the absolute value bars with parentheses and put a negative out front (as explained in the lecture video). For the domain where the inside is positive, you can replace the absolute value bars with parentheses. This is how you get the functions for the piecewise definition.

Problem 3 *Consider the following absolute value expression:*

$$|2\,x+5|+5\,x-1$$

Fill in the missing pieces of the following piecewise definition

$$|2\,x+5|+5\,x-1=\begin{cases}\boxed{3\,x-6} & x<\boxed{-\frac{5}{2}}\\ \boxed{7\,x+4} & x\geq\boxed{-\frac{5}{2}}\end{cases}$$

Feedback(attempt): *Begin by finding where the content inside the absolute value equals zero. Do this by setting the part inside the absolute value (i.e.* $2x+5$*) equal to zero and solve. That value will be the pivot point, i.e. the value that you use in the right most column of domain values.*

For the set of x-values where the function side the absolute value is negative, you want to replace the absolute value bars with parentheses and put a negative out front (as explained in the lecture video). For the domain where the inside is positive, you can replace the absolute value bars with parentheses. This is how you get the functions for the piecewise definition.

Problem 4 *Consider the following absolute value expression:*

$$|3x-4|+4x-3$$

Fill in the missing pieces of the following piecewise definition

$$|3x-4|+4x-3=\begin{cases}\boxed{x+1} & x<\boxed{\frac{4}{3}}\\ \boxed{7x-7} & x\geq\boxed{\frac{4}{3}}\end{cases}$$

Feedback(attempt): *Begin by finding where the content inside the absolute value equals zero. Do this by setting the part inside the absolute value (i.e.* $3x-4$*) equal to zero and solve. That value will be the pivot point, i.e. the value that you use in the right most column of domain values.*

For the set of x-values where the function side the absolute value is negative, you want to replace the absolute value bars with parentheses and put a negative out front (as explained in the lecture video). For the domain where the inside is positive, you can replace the absolute value bars with parentheses. This is how you get the functions for the piecewise definition.