

To do well in Mathematics it is very important to identify your mistakes and work out what causing them. There is a cool saying I really like: "never waste a good mistake"! Mistakes are learning opportunities, so embrace them and learn from there. Here is an example of one of my students in 8MAT4 learning from a mistake and another from 10MAT4. These two students have benefitted from their mistakes.

a	$3-x=5.5$	$X=-2.5$	<input checked="" type="checkbox"/>
b	$3-x=0$	$X=3$	<input checked="" type="checkbox"/>
c	$3-x=3.5$	$X=0.5$	<input type="checkbox"/> $X=-0.5$ I forgot the minus sign j should have read it more carefully.
d	$3-x=-1$	$X=4$	<input checked="" type="checkbox"/>
e	$3-x=-2$	$X=5$	<input checked="" type="checkbox"/>

(c) $w^4 - 26w^2 + 25$
 $(w^2)^2 - 26w^2 + 25$
 $= w^4 - w^2 - 25w^2 + 25$
 $= w^2(w^2 - 1) - 25(w^2 - 1)$
 $= (w^2 - 1)(w^2 - 25)$
 $= (w - 1)(w + 1)(w - 5)(w + 5)$

← Instead of $-w^2 - 25w^2$ I did $+w^2 - 25w^2$ but found the mistake when I expanded from the answer to check.

e) $16 - n^4$
 $(2)^4 - (n)^4$
 $= (2 - n)(2 + n)(4 + n^2)$

← took me a while to figure out I needed the $(4 + n^2)$

g) $(a + b)^2 - (c + d)^2$
 $= a^2 + 2ab + b^2 - c^2 + 2cd + d^2$
 $= (a + b + c + d)(a + b - c + d)$
 $= a^2 + 2ab + b^2 - c^2 - 2cd - d^2$
 $= (a + b + c - d)(a + b - c - d)$

← wrong. discovered when expanded