

1- $|^a| > 1 \rightarrow a > 1$
 $a > 1 \rightarrow a^x = 1 \rightarrow x = 0$
 $a < 1 \rightarrow a^x = 1 \rightarrow x = 0$
 $a > 1 \rightarrow a^x = a \rightarrow x = 1$
 $a < 1 \rightarrow a^x = a \rightarrow x = 1$
 $a > 1 \rightarrow a^x = \frac{1}{a} \rightarrow x = -1$
 $a < 1 \rightarrow a^x = \frac{1}{a} \rightarrow x = -1$

2- $\log_2 x^m + 10 = m + 10 \rightarrow x^m = 2^{m+10} = (2^2)^{m+10} = 4^{m+10}$
 $(x^m)^m + 10 = m + 10 \rightarrow x^m = 2^m \rightarrow x = 2$
 $\log_2 x^m = m \rightarrow x^m = 2^m \rightarrow x = 2$
 $\log_2 x^m + 10 = m + 10 \rightarrow x^m = 2^{m+10} = 4^{m+10}$

3- $\log_2 x^m = m \rightarrow x^m = 2^m \rightarrow x = 2$
 $\log_2 x^m + 10 = m + 10 \rightarrow x^m = 2^{m+10} = 4^{m+10}$
 $\log_2 x^m = m \rightarrow x^m = 2^m \rightarrow x = 2$

4- $\log_2 (1-m)^m + \log_2 (1-m)^m = 0 \rightarrow \log_2 (1-m)^{2m} = 0 \rightarrow (1-m)^{2m} = 1 \rightarrow 1-m = 1 \rightarrow m = 0$
 $\log_2 (1-m)^m = 0 \rightarrow (1-m)^m = 1 \rightarrow 1-m = 1 \rightarrow m = 0$

5- $\log_2 (m+2)^p + \log_2 (m-2)^p = p \rightarrow (m+2)^p (m-2)^p = 2^p \rightarrow (m^2 - 4)^p = 2^p \rightarrow m^2 - 4 = 2 \rightarrow m^2 = 6 \rightarrow m = \sqrt{6}$
 $\log_2 \frac{1}{2} = \frac{1}{2} \times \log_2 2 = \frac{1}{2}$

