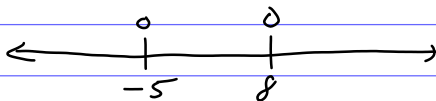


First look at $(x+5)^3(x-8)^4 = 0$ ← not the original question
 (times) (times, =, 0) so we can split

$$\begin{aligned} (x+5)^3 &= 0 & (x-8)^4 &= 0 \\ \sqrt[3]{(x+5)^3} &= \sqrt[3]{0} & \sqrt[4]{(x-8)^4} &= \sqrt[4]{0} \\ x+5 &= 0 & x-8 &= 0 \\ x &= -5 & x &= 8 \end{aligned}$$



| | $(-\infty, -5)$ | $(-5, 8)$ | $(8, \infty)$ |
|------------------|-----------------|-----------|---------------|
| $(x+5)^3$ | - | + | + |
| $(x-8)^4$ | + | + | + |
| $(x+5)^3(x-8)^4$ | - | + | + |

Below the table is a number line with arrows at both ends, with tick marks at -5 and 8. Above the line, signs are placed in the intervals: a minus sign for $(-\infty, -5)$, a plus sign for $(-5, 8)$, and a plus sign for $(8, \infty)$. Green arrows point from the signs in the table rows to the corresponding intervals on the number line.

Now to answer the original question:

$$(x+5)^3(x-8)^4 < 0 \quad \text{happens when } x \text{ is } (-\infty, -5)$$