Correct. Add $\left(\dfrac{-24}{2}\right)^2 = (-12)^2 = 144$ to both sides to complete the square: $x^2 - 24x + 144 = 0$

Write the left side as the square of a binomial: $(x - 12)^2 = 0$

Take the square root of both sides: $x - 12 = 0$

Solve for $x$: $x = 12$