

August 5th

Solve for x

$$5^x - 5^{x-2} = 120\sqrt{5}$$

Factorise the LHS:

$$5^x(1 - 5^{-2}) = 120\sqrt{5}$$

Therefore

$$5^x = \frac{24/25}{120\sqrt{5}} = \frac{1}{125\sqrt{5}}$$

$$= \frac{1}{5^{7/2}} = 5^{-7/2}$$

Hence

$$x = -7/2$$