

Course > Week 4... > Lesson... > QQ2

## QQ2

QQ2

0 points possible (ungraded)

Lets try a quick estimation problem. How many disposable diapers for children are sold in the United States each year? Assume population of the United States is 320 million. Enter your answer in two parts: digits and then the exponent. Remember, if your answer is 23 million, you would enter 2.3 as the digits and 7 as the exponent.

What is the digit? Only use one decimal place.

3.2	<b>✓ Answer:</b> 1.6
3.2	<del></del>

What is the exponent? This is an integer.



## **Explanation**

OK, here is how I thought about this. I will use the notation 2.3e4 to indicate 23000, that is, 2.3 are the digits and 4 is the exponent in scientific notation.

- There are 320 million people in the United States
- Life expectancy is 80 years and lets assume an equal distribution by age
- Babies wear diapers for the first three years of their lives
- On average, there are 4 to 6 diaper changings per day, lets use 5
- 75% of market uses disposable diapers others use cloth

Number of disposable diaper wearers = (3.2e8 ppl)(3/80 or 3.8e-2 share of diaper wearers) (7.5e-1) = 9.1e6 diaper wearers (that is, 9.1 million)

Number of diapers used each = (5 changes/day)(365 days/year) = 1.8e3 diapers per year per baby

Diapers per year = (9e6 diaper users)(1.8e3 diapers/user) = 1.6e10 diapers per year, that is 16 billion diapers a year.

In 2014, the revenue from disposable diapers in the US was 6 billion dollars at about 40 cents each for an estimate of 15 billion diapers. (source: statista.com). Wow! closer than I thought I'd get!

Note - we totally ignored the adult diaper market which is growing faster than the traditional market!

Submit

You have used 3 of 3 attempts

**1** Answers are displayed within the problem

## Questions, comments and suggestions about this section

If you have any questions, comments or suggestions about this section, please use the "Add a Post" button in the discussion forum below. Your post will be indexed in the right category and it will be easier for the staff to answer it!

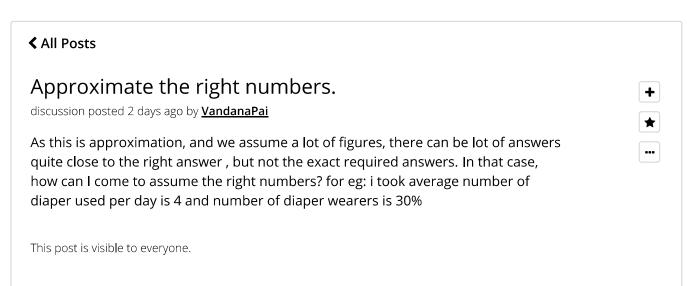
If you have a question, classify your post as a "question" (instead of "discussion"), since we try to review those post first.

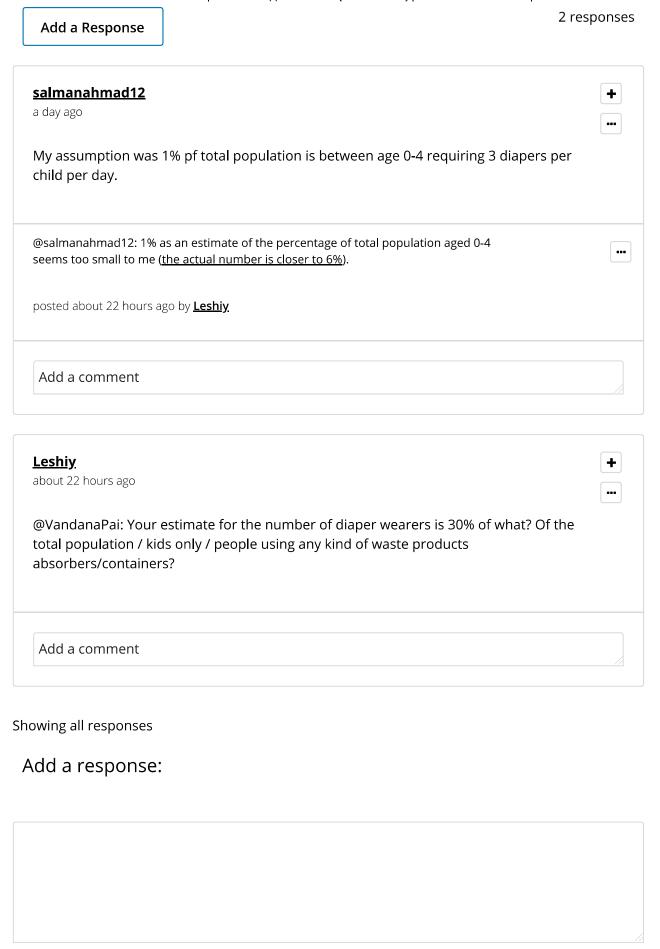
## Discussion

Topic: Week 4 / Lesson 2, Quick Question 2

**Hide Discussion** 

Add a Post





© All Rights Reserved