Suppose babies born after a gestation period of 32 to 35 weeks have a mean weight of 3000 grams and a standard deviation of 1000 grams while babies born after a gestation period of 40 weeks have a mean weight of 3600 grams and a standard deviation of 560 grams. If a 35-week gestation period baby weighs 2575 grams and a 41-week gestation period baby weighs 3175 grams, find the corresponding z-scores. Which baby weighs less relative to the gestation period?

To determine which baby weighs relatively less, compute each baby's z-score. The population z-score can be found using the formula below.

$$z = \frac{x - \mu}{\sigma}$$

35-week baby   (born 32 to 35 weeks, so mean = 3000 and s.d. = 1000)

z = (2575 – 3000) / 1000

  = -0.43 (rounded to two decimal places)

41-week baby (born after 40 weeks, so mean = 3600 and s.d. = 560)

z = (3175 – 3600) / 560

  = -0.76 (rounded to two decimal places)

The same z-score means the baby born at 35-weeks weighs MORE relative to other babies its same age. The 35-week baby weighs 0.43 standard deviations LESS than the average baby born the same week he was born. The 41-week baby weighs 0.76 standard deviations LESS than the average baby born the same week he was born. SO, this baby born in week 35 at 2575 grams weighs MORE than the baby born at 41 weeks who weighs 3175 grams RELATIVE to other babies that same age. ☺

So, when the z-score is smaller, and -0.76 is less than -0.43, the baby weighs less.

The 35-week gestation period baby weighs 0.43 standard deviations below the mean.
The 41-week gestation period baby weighs 0.76 standard deviations below the mean.
(Round to two decimal places as needed.)

Which baby weighs relatively less?

○A. The baby born in week 35 does since its z-score is larger.

○B. The baby born in week 41 does since its z-score is larger.

○C. The baby born in week 35 does since its z-score is smaller.

✔D. The baby born in week 41 does since its z-score is smaller.