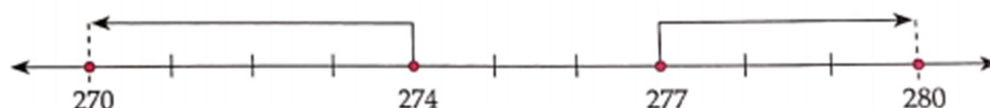


Estimation

Rounding off a number to the nearest tens

Consider the numbers 274 and 277. If we plot these numbers on the number line we find that 274 lies between 270 and 280. Further, we note that 274 is nearer to 270 than to 280. So, we round off 274 as 270, correct to the nearest tens. Also, we find that 277 lies between 270 and 280, and we note that 277 is nearer to 280 than to 270. So, we round off 277 as 280, correct to the nearest tens.



Now consider the number 275. It lies exactly half-way between 270 and 280. By convention we round off 275 as 280.



As the numbers 1, 2, 3 and 4 are nearer to 0 than 10, so we round off 1, 2, 3 and 4 as 0. As the numbers 6, 7, 8 and 9 are nearer to 10 than 0, so we round off 6, 7, 8 and 9 as 10. Further, as the number 5 lies exactly half-way between 0 and 10, by convention, we round off 5 as 10.

Step 1 –

Look at the digit at ones place of the given number.

Step 2 –

If the digit at ones place is less than 5, then replace the ones digit by 0 and keep all other digit of the number as they are.

Step 3 –

If the digit at ones place is 5 or greater than 5, then increase the tens digit by 1 and replace the ones digit by 0.

EXERCISE - 1.4

Q 1. Round off each of the following numbers to their nearest tens:

(iii) 1205

Solution:

The digit at ones place is 5. So, we increase the tens digits by 1 and replace the ones digits by 0.

The rounded of number to the nearest tens = 1210

Rounding off a number to the nearest hundreds

Step 1-

Look at the digit at tens place of the given number.

Step 2 -

If the digit at tens place is less than 5, then replace each of the digit at tens place and ones place by 0. Keep all other digit of the number as they are.

Step 3-

If the digit at tens place is 5 or greater than 5, then increase the digit at hundreds place by 1 and replace each of the digit at tens place and one's place by 0.

EXERCISE - 1.4

Q 2. Estimate each of the following numbers to their nearest hundreds:

(ii) 32057

Solution :

The digits at the tens place is 5. So, we increase the digits at hundreds place by 1 and replace each of the digit at tens place and ones place by 0.

The rounded of number to the nearest hundreds = 32100

Rounding off a number to the nearest thousands

Step 1-

Look at the digit at hundreds place of the given number.

Step 2 –

If the digit at hundreds place is less than 5, then replace each of the digit at hundreds place, tens place and ones place by 0. Keep all other digit of the number as they are.

Step 3-

If the digit at hundreds place is 5 or greater than 5, then increase the digit at thousands place by 1 and replace each of the digit at hundreds place, tens and ones place by 0.

EXERCISE - 1.4

Q 3. Estimate each of the following numbers to their nearest thousands:

(iv) 1,09,736

Solution:

The digits at the hundreds place is 7, which is greater than 5.

Therefore, the estimation of the given number to its nearest thousands = 1,10,000

Estimation of sum, difference and product

There are no rigid rules to estimate a number. We can round off a number to any place [tens, hundreds, thousands, etc.] Depending upon the degree of accuracy required.

The most important aspect of the estimation is that the estimated number should make sense i.e. the estimation should be reasonable [near to actual answer].

EXERCISE - 1.4

Q 5. Estimate each of the following by rounding of each number nearest to its greatest place.

(ii) $5,290 + 17,986$

Solution :

The estimation of the number 5290 nearest to its greatest place i.e the thousands place = 5000.

The estimation of the number 17986 nearest to its greatest place i.e the ten thousands place = 20000.

Therefore, the estimated sum = $20000 + 5000 = 25000$

Q 5. Estimate each of the following by rounding of each number nearest to its greatest place.

(iv) $28,292 - 21,496$

Solution:

The estimation of the number 28292 nearest to its greatest place i.e the thousands place = 30000.

The estimation of the number 21496 nearest to its greatest place i.e the thousands place = 20000.

Therefore, the estimated difference = $30000 - 20000 = 10000$

Q 6. Estimate each of the following products by rounding of each of its factor nearest to its greatest place:

(ii) 9650×27

Solution:

The given numbers are 9650 and 27

Rounding of 9650 to its greatest place i.e thousands place,

Estimated number = 10000

Rounding of 27 to its greatest place i.e tens place,

Estimated number = 30

Therefore, the estimated product = $10000 \times 30 = 3,00,000$

Assignment:

Exercise: 1.4

Q. No. 1(i, ii and iv) ; Q. No. 2(i, iii and iv) ; Q. No. 3(i, ii and iii)

Q.no. 4 and 7