

Estimation

EXERCISE 2(A)

Question 1.

Round off each of the following to the nearest ten:

- (i) 62
- (ii) 265
- (iii) 543
- (iv) 8261
- (v) 6294
- (vi) 3008
- (vii) 72326

Solution:

If the digit at ones place is less than 5, replace ones digit by 0, and keep the other digit as they are :

And if the digit at ones place is 5 or more than 5, increase tens digit by 1, and replace ones digit by 0.

- (i) $62 - 60$
- (ii) $265 - 270$
- (iii) $543 - 540$
- (iv) $8261 - 8260$
- (v) $6294 - 6290$
- (vi) $3008 - 3010$

Question 2.

Round off each of the following to the nearest hundred :

- (i) 748
- (ii) 784
- (iii) 2667
- (iv) 5432
- (v) 6388
- (vi) 59237

Solution:

If the tens digit is less than 5, replace each one of tens and once digits by 0 and keep the other digits as they are :

- (i) $748 - 700$
- (ii) $784 - 800$
- (iii) $2667 - 2700$
- (iv) $5432 - 5400$
- (v) $6388 - 6400$
- (vi) $59237 - 59200$

Question 3.

Round off each of the following to the nearest thousand:

- (i) 6475
- (ii) 6732

- (iii) 5352
- (iv) 32568
- (v) 9248
- (vi) 83294

Solution:

If the tens digit is 5 or more than 5, increase the hundreds digit by 1 and replace each of tens digit and ones digit by 0.

- (i) 6475 – 6000
- (ii) 6732 – 7000
- (iii) 25352 – 25000
- (iv) 32568 – 33000
- (v) 9248 – 9000
- (vi) 83294 – 83000

Question 4.

Round off

- (i) 578 to the nearest ten.
- (ii) 578 to the nearest hundred.
- (iii) 4327 to the nearest thousand.
- (iv) 32974 to the nearest ten-thousand.
- (v) 27487 to the nearest ten-thousand.

Solution:

- (i) 578 – 580
- (ii) 578 – 600
- (iii) 4327 – 4000
- (iv) 32974 – 30000
- (v) 27487 – 30000

Question 5.

Round off each of the following to the nearest tens, hundreds and thousands.

- (i) 864
- (ii) 1249
- (iii) 54, 547
- (iv) 68, 076
- (v) 56, 293
- (vi) 7, 293
- (vii) 89, 24, 379

Solution:

- (i) 864 – 860
- 864 – 900
- 864 – 1000
- (ii) 1249 – 1250
- 1249 – 1200
- 1249 – 1000
- (iii) 54, 547 – 54550
- 54, 547 – 54500

54, 547 – 55000
(iv) 68, 076 – 68, 080
68, 076 – 68, 100
68, 076 – 68, 000
(v) 56, 293 – 56, 290
56, 293 – 56, 300
56, 293 – 56, 000
(vi) 7, 293 – 7290
7, 293 – 7, 300
7, 293 – 7000
(vii) 89, 24, 379 – 89, 24, 380
89, 24, 379 – 89, 24, 400
89, 24, 379 – 89, 24, 000

Question 6.

Round off the following to the nearest tens ;

- (i) ₹ 562
- (ii) 837 m
- (iii) 545 cm
- (iv) ₹ 27

Solution:

- (i) ₹ 562
₹ 562 – ₹ 560
- (ii) 837 m
837 – 840 m
- (iii) 545 cm
545 – 550
- (iv) ₹ 27
₹ 27 – ₹ 30

Question 7.

List all the numbers which can be round off to 30.

Solution:

The numbers that can be rounded off to 30 are:

26, 27, 28, 29, 31, 32, 33, 34

Question 8.

List all the numbers which can be rounded off to 50.

Solution:

The numbers that can be rounded off to 50 are:

46, 47, 48, 49, 51, 52, 53, 54

Question 9.

Write the smallest and the largest numbers which are rounded off to 80.

Solution:

The smallest number which is rounded off to 80 is 75
and the largest number which is rounded off to 80 is 84.

Question 10.

Write the smallest and the largest numbers which are rounded off to 130.

Solution:

The smallest number which is rounded off to 130 is 125
and The largest number which is rounded off to 130 is 134.

EXERCISE 2(B)

Question 1.

Estimate the sum of each pair of numbers to the nearest ten :

- (i) 67 and 44
- (ii) 34 and 87
- (iii) 23 and 66
- (iv) 78 and 18
- (v) 96 and 55
- (vi) 76 and 62
- (vii) 457 and 175
- (viii) 474 and 173
- (ix) 527 and 267

Solution:

- (i) 67 and 44

67 to the nearest ten = 70 and, 44 to the nearest ten = 40

∴ Required sum $(70 + 40) = 110$

- (ii) 34 and 87

34 to the nearest ten = 30 and, 87 to the nearest ten = 90

∴ Required sum $= (30 + 90) = 120$

- (iii) 23 and 66

23 to the nearest ten = 20 and, 66 to the nearest ten = 70

∴ Required sum $= (20 + 70) = 90$

- (iv) 78 and 18

78 to the nearest ten = 80 and, 18 to the nearest ten = 20

∴ Required sum $= (80 + 20) = 100$

- (v) 96 and 55

96 to the nearest ten = 100 and, 55 to the nearest ten = 60

∴ Required sum $= (100 + 60) = 160$

- (vi) 76 and 62

76 to the nearest ten = 80 and, 62 to the nearest ten = 60

∴ Required sum $= (80 + 60) = 140$

- (vii) 457 and 175

457 to the nearest ten = 460 and, 175 to the nearest ten = 180

∴ Required sum $= (460 + 180) = 640$

- (viii) 474 and 173

474 to the nearest ten = 470 and, 173 to the nearest ten = 170

∴ Required sum = $(470 + 170) = 640$

(ix) 527 and 267

527 to the nearest ten = 530 and, 267 to the nearest ten = 270

∴ Required sum = $(530 + 270) = 800$

Question 2.

Estimate the sum of each pair of numbers to the nearest hundred :

(i) 336 and 782

(ii) 546 and 342

(iii) 270 and 495

(iv) 4280 and 5295

(v) 4230 and 2410

(vi) 30047 and 39287

Solution:

(i) 336 and 782

336 to the nearest hundred = 300 and, 782 to the nearest hundred = 800

∴ Required sum = $(300 + 800) = 1100$

(ii) 546 and 342 and, 342 to the nearest hundred = 300

∴ Required sum = $(500 + 300) = 800$

(iii) 270 and 495

270 to the nearest hundred = 300 and, 495 to the nearest hundred = 500

∴ Required sum = $(300 + 500) = 800$

(iv) 4280 and 5295

4280 to the nearest hundred = 4300 and, 5295 to the nearest hundred = 5300

∴ Required sum = $(4300 + 5300) = 9600$

(v) 4230 and 2410

4230 to the nearest hundred = 4200 and, 2410 to the nearest hundred = 2400

∴ Required number = $(4200 + 2400) = 6600$

(vi) 30047 and 39287

30047 to the nearest hundred = 30000 and, 39287 to the nearest hundred = 39300

∴ Required sum = $(30000 + 39300) = 69,300$

Question 3.

Estimate the sum of the following pair of numbers to the nearest thousand:

(i) 53826 and 36455

(ii) 56802 and 22475

Solution:

(i) 53826 and 36455

53826 to the nearest hundred = 54000 and, 36455 to the nearest hundred = 36000

∴ Required sum = $(54000 + 36000) = 90000$

(ii) 56802 and 22475

56802 to the nearest thousand = 57000 and, 22475 to the nearest thousand = 22000

∴ Required sum = $(57000 + 22000) = 79000$

Question 4.

Estimate the following differences correct to nearest ten :

(i) $82 - 27$

(ii) $96 - 36$

(iii) $508 - 248$

Solution:

(i) $82 - 27$

82 to the nearest ten = 80 and, 27 to the nearest ten = 30

$\therefore$ Required difference = $(80 - 30) = 50$

(ii) $96 - 36$

96 to the nearest ten = 100 and, 36 to the nearest ten = 40

$\therefore$ Required difference = $(100 - 40) = 60$

(iii) $508 - 248$

508 to the nearest ten = 510 and, 248 to the nearest ten = 250

$\therefore$ Required difference = $(510 - 250) = 260$

Question 5.

Estimate each difference to the nearest hundred :

(i) $769 - 314$

(ii) $856 - 687$

(iii) $6352 - 2086$

Solution:

(i) $769 - 314$

769 to the nearest hundred = 800 and, 314 to the nearest hundred = 300

$\therefore$ Required difference = $(800 - 300) = 500$

(ii) $856 - 687$

856 to the nearest hundred = 900 and, 687 to the nearest hundred = 700

$\therefore$ Required difference = $(900 - 700) = 200$

(iii) $6352 - 2086$

6352 to the nearest hundred = 6400 and, 2086 to the nearest hundred = 2100

$\therefore$ Required difference = $(6400 - 2100) = 4300$

Question 6.

Estimate each difference to the nearest thousand:

(i) $45974 - 38766$

(ii) $76003 - 48399$

Solution:

(i) $45974 - 38766$

45974 to the nearest thousand = 46000 and, 38766 to the nearest thousand = 39000

$\therefore$ Required difference = $(46000 - 39000) = 7000$

(ii) $76003 - 48399$

76003 to the nearest thousand = 76000 and, 48399 to the nearest thousand = 48000

$\therefore$ Required difference = $(76000 - 48000) = 28000$

Question 7.

Estimate each of the following products by rounding of each number to the nearest ten :

- (i) 49×52
- (ii) 63×38
- (iii) 27×54
- (iv) 53×85
- (v) 74×67
- (vi) 25×33

Solution:

- (i) 49×52

49 to the nearest ten = 50 and, 52 to the nearest ten = 50

$\therefore$ Required product = $(50 \times 50) = 2500$

- (ii) 63×38

63 to the nearest ten = 60 and, 38 to the nearest ten = 40

$\therefore$ Required product = $(60 \times 40) = 2400$

- (iii) 27×54

27 to the nearest ten = 30 and, 54 to the nearest ten = 50

$\therefore$ Required product = $(30 \times 50) = 1500$

- (iv) 53×85

53 to the nearest ten = 50 and, 85 to the nearest ten = 90

$\therefore$ Required product = $(50 \times 90) = 4500$

- (v) 74×67

74 to the nearest ten = 70 and, 67 to the nearest ten = 70

$\therefore$ Required product = $(70 \times 70) = 4900$

- (vi) 25×33

25 to the nearest ten = 30 and, 33 to the nearest ten = 30

$\therefore$ Required product = $(30 \times 30) = 900$

Question 8.

Estimate each of the following products by rounding off each number to the nearest hundred :

- (i) 477×213
- (ii) 624×236
- (iii) 333×247
- (iv) 537×283
- (v) 382×127
- (vi) 427×328

Solution:

- (i) 477×213

477 to the nearest hundred = 500 and, 213 to the nearest hundred = 200

$\therefore$ Required product = $(500 \times 200) = 100000$

- (ii) 624×236

624 to the nearest hundred = 600 and, 236 to the nearest hundred = 200

$\therefore$ Required product = $(600 \times 200) = 120000$

- (iii) 333×247

333 to the nearest hundred = 300 and, 247 to the nearest hundred = 200

∴ Required product = $(300 \times 200) = 60000$

(iv) 537×283

537 to the nearest hundred = 500 and, 283 to the nearest hundred = 300

∴ Required product = $(500 \times 300) = 150000$

(v) 382×127

382 to the nearest hundred = 400 and, 127 to the nearest hundred = 100

∴ Required product = $(400 \times 100) = 40000$

(vi) 427×328

472 to the nearest hundred = 500 and, 328 to the nearest hundred = 300

∴ Required product = $(500 \times 300) = 150000$

Question 9.

Estimate each of the following products by rounding off the first number correct to nearest ten and the other number correct to nearest hundred :

(i) 28×287

(ii) 432×128

(iii) 48×165

(iv) 72×258

(v) 83×664

(vi) 44×250

Solution:

(i) 28×287

28 to the nearest ten = 30 and, 287 to the nearest hundred = 300

∴ Required product = $(30 \times 300) = 9000$

(ii) 432×128

432 to the nearest ten = 430 and, 128 to the nearest hundred = 100

∴ Required product = $(430 \times 100) = 43000$

(iii) 48×165

48 to the nearest ten = 50 and, 165 to the nearest hundred = 200

∴ Required product = $(50 \times 200) = 10000$

(iv) 72×258

72 to the nearest ten = 70 and, 258 to the nearest hundred = 300

∴ Required product = $(70 \times 300) = 21000$

(v) 83×664

83 to the nearest ten = 80 and, 664 to the nearest hundred = 700

∴ Required product = $(80 \times 700) = 56000$

(vi) 44×250

44 to the nearest ten = 40 and, 250 to the nearest hundred = 300

∴ Required product = $(40 \times 300) = 12000$

Question 10.

Estimate each of the following quotients by converting each number to the nearest ten :

(i) $87 \div 28$

(ii) $84 \div 23$

(iii) $77 \div 22$

(iv) $198 \div 24$

(v) $355 \div 26$

(vi) $444 \div 42$

(vii) $843 \div 33$

Solution:

(i) $87 \div 28$

$(87 \div 28)$ is (approximately to the nearest 10) equal to $90 \div 30 = 3$

(ii) $84 \div 23$

$84 \div 23$ is (approximately to the nearest 10) equal to $80 \div 20 = 4$

(iii) $77 \div 22$

$77 \div 22$ is (approximately to the nearest 10) equal to $80 \div 20 = 4$

(iv) $198 \div 24$

$198 \div 24$ is (approximately to the nearest 10) equal to $200 \div 20 = 10$

(v) $355 \div 26$

$355 \div 26$ is (approximately to the nearest 10) equal to $360 \div 30 = 12$

(vi) $444 \div 42$

$444 \div 42$ is (approximately to the nearest 10) equal to $440 \div 40 = 11$

(vii) $843 \div 33$

$843 \div 33$ is (approximately to the nearest 10) equal to $840 \div 30 = 28$