

Simplification & Approximation

Concept, Tips & Model Questions



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Importance of Simplification Questions

The importance of Simplification is immense when it comes to RRB Clerk Prelims exam. If you have a look at the RRB Clerk 2019 Prelims exam analysis (which took place on August 17, 2019), you will find that out of 40 questions there were 10 questions of Simplification. So preparing well in this exam will make you better prepared for the exam and if simplification questions appear, you will be able to secure their marks. Do you remember when you were a kid and learned about basic mathematical operators and the BODMAS rule? Questions having a combination of these operators can save your day on the exam day. Questions on this topic are perhaps the easiest in the complete quantitative ability section. You need to follow the BODMAS rule when attempting these questions.

BODMAS Rule

To refresh your memory, BODMAS stands for:

- B- Bracket
- O- Of
- **D-** Division
- M- Multiplication
- A- Addition
- S- Subtraction

You should go from left to right on BODMAS rule when attempting simplification question. The highest priority should be solving whatever is inside the brackets. If there are more than one kind of brackets, it should be prioritized in the order of $(), \{\} \& []$. If there is more than one operator inside the bracket,

again stick to the BODMAS rule to solve whatever is inside the bracket. For instance, in the below problem the first priority should be $2\div 2$ which equals to `4' and then 5-4 should be solved.

20×18+[5-(2÷2)]

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Comfort level with Approximation

You should be extremely good in approximation and rounding off numbers. Expect a handful of questions on simplification & approximation in IBPS RRB PRACTICE MOCK

Simplification & Approximation - Concept & Practice Questions

Office Assistant prelims and a question should not take more than 10-15 seconds to solve. If you have done enough practice, simplification questions would be those kinds of questions where you get maximum marks in minimum time. If you become proficient enough in this topic, you don't even need to pick up the pen to answer the simplification questions.



Tips for quick calculations

• Memorize squares of numbers up to 40 and cubes of numbers up to 15. These numbers, once ingrained in your memory come very handy in calculations and save time.

• Fractions are always easy to solve when compared with decimals. So, $\frac{2}{3}$ is always better than 0.67 and $\frac{1}{8}$ is easy to solve when compared to 0.125. Memorizing the fractional equivalents of decimals will make your calculations easy.

• Memorize the tables up to 30 (when multiplied up to 30 times). For eg. 26×17 , 18×24 etc. should be on your fingertips. Let's have a look at look at one simplification and approximation question asked in the past.

Example 1

 $21.003 \times 39.998 - 209.91 = 126 \times ?$

- A. 5
- B. 4
- C. 3
- D. 2
- E. 6

Example 2

(47% of 1442 - 36% of 1412) ÷ 63=? A. 4 B. 5 C. 3 D. 6 E. 1

In the first example, 21.003 can easily be rounded off to 21 and 39.998 to 40. A quick mental calculation gives you the product of both as 820. 209.91 can be rounded off to 210 and the subtraction gives us 610. On the other side, we have

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126. A quick mental calculation says that 600 when divided by 120, gives the quotient 5 which is the answer. Please note that the options are not in decimals and therefore all of these approximations will make very little difference in the answer. All of this calculation should happen in your mind and should hardly take 15 seconds. When you **practice mock tests**, you encounter such kind of questions and good practice will certainly help you handle these questions better.

Looking at the second example, please have a look at the answers and notice that none of them is in

decimal. This gives you freedom of doing some approximation (which is also the point which examination authority wants to check). If you have already noticed, there isn't much difference in the two bases for which the percentages are taken. So, finally assuming a base of 1,400 we need to calculate the difference between 47 & 36 which is 9 and 9% of 1400 is 126. 126, when divided by 63, is 2.

Beware of the speed-breakers

Expect a speed-breaker question which wouldn't be **that easy to solve**. Barring that the remaining 4-5 questions should not take more than 2 minutes of your time. Our only advice at this point in time is '**practice more with different variants of simplification & approximation questions**' and we are sure that you will solve this section accurately in very less time. You can encounter new types of questions when attempting mock tests. Try different strategies in mock tests before finalizing one for the actual test.

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Model Questions for RRB Clerk 2020 Prelims

1. What will come in the place of question mark (?) in the given expression? $(420 \div 12 \times 35 + 452 - 152) = ?2$ a. 85 b. 65 c. 50 d. 55 e. 40 **Answer: d) Solution:** $(420 \div 12 \times 35 + 452 - 152) = ?2$ $?2 = 35 \times 35 + 2025 - 225$?2 = 1225 + 2025 - 225

Prelims

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?2 =1225 + 1800 ? = $\sqrt{3025}$ = 55 Hence, option d.	
2. What will come 45% of $480 + 182a. 25b. 30c. 27d. 32e. 22Answer: c)Solution:45%$ of $480 + 182?2 - 289 + 100 =?2 - 189 = 216 +?2 = 540 + 189?= \sqrt{729}? = 27Hence, option c$	in the place of question mark (?) in the given expression? = ?2 - 172 + 102 = ?2 - 172 + 102 0.45 × 480 + 324 324
3. What will come $(210 \div 14) \times 15 +$ a. 27 b. 31 c. 36 d. 24 e. 18 Answer: b) Solution: $(210 \div 14) \times 15 +$ $?2 - (1/5) \times 555 =$?2 - 111 = 225 + 6 ?2 = 850 + 111 $? = \sqrt{961} = 31$ Hence, option b.	in the place of question mark (?) in the given expression? 252 = ?2 - 20% of 555 252 = ?2 - 20% of 555 = 15 × 15 + 625
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4. What will come in the place of question mark (?) in the given expression? 25% of 540 + 182 = ?2 - 212a. 50

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b. 4 c. 30 d. 4 e. 39 Ans Solu 25% ?2 - ?2 - ?2 - ?2 = Hen	2 0 6 wer: c ution: $0 ext{ of 540} \\ 441 = \\ 441 = \\ 459 + \\ \sqrt{900} = \\ ce, opt$	2) + 183 0.25 x 135 + - 441 = 30 ion c.	2 = ?2 - 212 540 + 324 324
5. W √52 a. 1 b. 1 c. 1 d. 1 e. 1	/hat wil 9 + √6 20 30 25 35 10	ll come 576 – ν	in the place of question mark (?) in the given expression? 361 = 25% of ?
Ans Solu √52 0.25 0.25 ? = ? = Hen	wer: a $9 + \sqrt{6}$ $5 \times ? =$ 30/0.2 120 ce, opt	576 – v 23 + 2 30 5 ion a.	361 = 25% of ? 6 - 19
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6. W 152 a. 14 b. 14 c. 14 d. 14 e. 14 Ans Solu 152	/hat wil × 6 + 40 48 45 42 50 wer: d stion: × 6 +	ll come 142 × 1) 142 ×	in the place of question mark (?) in the given expression? 2 + ? - 736 = 710 - 108 2 + ? - 736 = 710 - 108
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912 + 284 + ? - 736 = 602
460 + ? = 602 ? = 142 Hence, option d.
 7. What will come in the place of question mark (?) in the given expression? 25 × 12 + ? - 15 × 14 = 35 × 15 a. 455 b. 450 c. 435 d. 440 e. 460
Answer: c) Solution: $25 \times 12 + ? - 15 \times 14 = 35 \times 15$ 300 + ? - 210 = 525 ? + 90 = 525 ? = 525 - 90 ? = 435 Hence, option c.
8. What will come in the place of question mark (?) in the given expression? 24% of $875 - 35\%$ of $320 = 25\%$ of ? a. 392 b. 312 c. 408 d. 384 e. 354 Answer: a) Solution: 24% of $875 - 35\%$ of $320 = 25\%$ of ? 0.25 × ? = 0.24 × $875 - 0.35 \times 320$ 0.25 × ? = $910 - 112$ 0.25 × ? = 98 ? = 392 Hence, option a.
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9. What will come in the place of question mark (?) in the given expression?

 $1542 + 1126 + ? - 1224 = 55 \times 70$

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a. 2386 b. 2406 c. 2842 d. 2566 e. 2746	
Answer: b) Solution: 1542 + 1126 + ? 2668 + ? - 1224 1444 + ? = 3850 ? = 3850 - 1444 ? = 2406 Hence, option b.	- 1224 = 55 × 70 = 3850
10. What will com 48% of 250 + 6 > a. 90 b. 80 c. 60 d. 50 e. 70 Answer: e) Solution: 48% of 250 + 6 > 120 + 54 - 104 = 70 = ? Hence, option e.	the in the place of question mark (?) in the given expression? $(9 - 8 \times 13 = ?)$ $(9 - 8 \times 13 = ?)$ = ?
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