

Simple Equations (on Integers)

Question Paper, Set 06

Time: 1 hour 30 minutes

Maximum marks: 50

Name: _____ Class: _____ Date: _____

1. Answer all 20 questions. The marks for each question are shown in brackets.
2. Show your working for the 2, 3 and 5 mark questions.
3. The key sheet and worked solutions are at the end of this paper.

1. Solve $x + 55 = 89$. [1 mark]
2. If $x - 44 = 49$, then find x . [1 mark]
3. Find x if $x \times 5 = 110$. [1 mark]
4. Solve $\frac{x}{5} = 48$. [1 mark]
5. Solve: (i) $x + 83 = -81$ (ii) $x - 53 = -90$ (iii) $5 \times x = 255$ (iv) $\frac{x}{25} = 456$ [5 marks]
6. If $x - 351 = -731$, then find x . [1 mark]
7. Solve $x \times 38 = 102866$. [2 marks]
8. If $\frac{x}{-8} = -38$, then find x . [1 mark]
9. If $5x - 109 = -134$, then find x . [2 marks]
10. Solve $\frac{x}{6} + 60 = 128$. [3 marks]
11. Solve: (i) $\frac{9x}{7} + 7 = 97$ (ii) $\frac{4x}{3} - 14 = -54$ [5 marks]
12. If $x + 11 = -11 - x$, then find x . [2 marks]
13. Find x if $3x - 30 = -48 - 3x$. [3 marks]
14. Find x if $7x - 14 + 9x = -34 + 11x$. [3 marks]
15. Find x if $54 - 5x = -6$. [2 marks]
16. Solve: (i) $6x - 73 = -103 + 9x$ (ii) $-4x - 32 - 2x = -8$ [5 marks]
17. The sum of two integers is 773. If one of them is -97 , then find the other. [2 marks]
18. What number should be added to 43 to get -101 ? [2 marks]
19. What number should be subtracted from 28 to get -161 ? [3 marks]

- 20.** (i) The product of two integers is 867. If one of them is -17 , then find the other. (ii) The difference of two integers is 66. If the smaller of them is 89, find the larger. [5 marks]
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Key sheet

Q	Answer
1	$x = 34$
2	$x = 93$
3	$x = 22$
4	$x = 240$
5	(i) $x = -164$, (ii) $x = -37$, (iii) $x = 51$, (iv) $x = 11400$
6	$x = -380$
7	$x = 2707$
8	$x = 304$
9	$x = -5$
10	$x = 408$
11	(i) $x = 70$, (ii) $x = -30$
12	$x = -11$
13	$x = -3$
14	$x = -4$
15	$x = 12$
16	(i) $x = 10$, (ii) $x = -4$
17	870
18	-144
19	189
20	(i) -51, (ii) 155

Solutions

1. Solve $x + 55 = 89$. [1]

$$x + 55 = 89$$

$$\Rightarrow x = 89 - 55$$

$$\Rightarrow x = 34$$

$$\text{Ans: } x = 34$$

2. If $x - 44 = 49$, then find x . [1]

$$x - 44 = 49$$

$$\Rightarrow x = 49 + 44$$

$$\Rightarrow x = 93$$

$$\text{Ans: } x = 93$$

3. Find x if $x \times 5 = 110$. [1]

$$x \times 5 = 110$$

$$\Rightarrow x = \frac{110}{5}$$

$$\Rightarrow x = 22$$

$$\text{Ans: } x = 22$$

4. Solve $\frac{x}{5} = 48$. [1]

$$\frac{x}{5} = 48$$

$$\Rightarrow x = 48 \times 5$$

$$\Rightarrow x = 240$$

$$\text{Ans: } x = 240$$

5. Solve: (i) $x + 83 = -81$ (ii) $x - 53 = -90$ (iii) $5 \times x = 255$ (iv) $\frac{x}{25} = 456$ [5]

$$(i) \ x + 83 = -81$$

$$\Rightarrow x = -81 - 83$$

$$\Rightarrow x = -164$$

$$(ii) \ x - 53 = -90$$

$$\Rightarrow x = -90 + 53$$

$$\Rightarrow x = -37$$

$$(iii) \ 5 \times x = 255$$

$$\Rightarrow x = \frac{255}{5}$$

$$\Rightarrow x = 51$$

$$(iv) \ \frac{x}{25} = 456$$

$$\Rightarrow x = 456 \times 25$$

$$\Rightarrow x = 11400$$

$$\text{Ans: (i) } x = -164, (ii) \ x = -37, (iii) \ x = 51, (iv) \ x = 11400$$

6. If $x - 351 = -731$, then find x . [1]

$$x - 351 = -731$$

$$\Rightarrow x = -731 + 351$$

Column subtraction: $731 - 351 = 380$; the bigger number is negative, so x is negative

$$\Rightarrow x = -380$$

Ans: $x = -380$

7. Solve $x \times 38 = 102866$. [2]

$$x \times 38 = 102866$$

$$\Rightarrow x = \frac{102866}{38}$$

Long division: $102 \div 38 = 2$, remainder 26; $268 \div 38 = 7$, remainder 2; $26 \div 38 = 0$, remainder 26; $266 \div 38 = 7$, remainder 0

$$\Rightarrow x = 2707$$

Ans: $x = 2707$

8. If $\frac{x}{-8} = -38$, then find x . [1]

$$\frac{x}{-8} = -38$$

$$\Rightarrow x = (-38) \times (-8)$$

$$- \times - = +$$

$$\Rightarrow x = 304$$

Ans: $x = 304$

9. If $5x - 109 = -134$, then find x . [2]

$$5x - 109 = -134$$

$$\Rightarrow 5x = -134 + 109$$

$$\Rightarrow 5x = -25$$

$$\Rightarrow x = \frac{-25}{5}$$

$$\Rightarrow x = -5$$

Ans: $x = -5$

10. Solve $\frac{x}{6} + 60 = 128$. [3]

$$\frac{x}{6} + 60 = 128$$

$$\Rightarrow \frac{x}{6} = 128 - 60$$

$$\Rightarrow \frac{x}{6} = 68$$

$$\Rightarrow x = 68 \times 6$$

$$\Rightarrow x = 408$$

Ans: $x = 408$

11. Solve: (i) $\frac{9x}{7} + 7 = 97$ (ii) $\frac{4x}{3} - 14 = -54$ [5]

$$(i) \frac{9x}{7} + 7 = 97$$

$$\Rightarrow \frac{9x}{7} = 97 - 7$$

$$\Rightarrow \frac{9x}{7} = 90$$

$$\Rightarrow 9x = 90 \times 7$$

$$\Rightarrow 9x = 630$$

$$\Rightarrow x = \frac{630}{9}$$

$$\Rightarrow x = 70$$

$$(ii) \frac{4x}{3} - 14 = -54$$

$$\Rightarrow \frac{4x}{3} = -54 + 14$$

$$\Rightarrow \frac{4x}{3} = -40$$

$$\Rightarrow 4x = -40 \times 3$$

$$\Rightarrow 4x = -120$$

$$\Rightarrow x = \frac{-120}{4}$$

$$\Rightarrow x = -30$$

Ans: (i) $x = 70$, (ii) $x = -30$

12. If $x + 11 = -11 - x$, then find x . [2]

$$x + 11 = -11 - x$$

$$\Rightarrow x + x = -11 - 11$$

$$\Rightarrow 2x = -22$$

$$\Rightarrow x = \frac{-22}{2}$$

$$\Rightarrow x = -11$$

Ans: $x = -11$

13. Find x if $3x - 30 = -48 - 3x$. [3]

$$3x - 30 = -48 - 3x$$

$$\Rightarrow 3x + 3x = -48 + 30$$

$$\Rightarrow 6x = -18$$

$$\Rightarrow x = \frac{-18}{6}$$

$$\Rightarrow x = -3$$

Ans: $x = -3$

14. Find x if $7x - 14 + 9x = -34 + 11x$. [3]

$$7x - 14 + 9x = -34 + 11x$$

$$\Rightarrow 16x - 14 = -34 + 11x$$

$$\Rightarrow 16x - 11x = -34 + 14$$

$$\Rightarrow 5x = -20$$

$$\Rightarrow x = \frac{-20}{5}$$

$$\Rightarrow x = -4$$

Ans: $x = -4$

15. Find x if $54 - 5x = -6$. [2]

$$54 - 5x = -6$$

$$\Rightarrow -5x = -6 - 54$$

$$\Rightarrow -5x = -60$$

$$\Rightarrow x = \frac{-60}{-5}$$

$$(- \div - = +)$$

$$\Rightarrow x = 12$$

$$\text{Ans: } x = 12$$

16. Solve: (i) $6x - 73 = -103 + 9x$ (ii) $-4x - 32 - 2x = -8$ [5]

$$(i) \ 6x - 73 = -103 + 9x$$

$$\Rightarrow 6x - 9x = -103 + 73$$

$$\Rightarrow -3x = -30$$

$$\Rightarrow x = \frac{-30}{-3}$$

$$(- \div - = +)$$

$$\Rightarrow x = 10$$

$$(ii) \ -4x - 32 - 2x = -8$$

$$\Rightarrow -6x - 32 = -8$$

$$\Rightarrow -6x = -8 + 32$$

$$\Rightarrow -6x = 24$$

$$\Rightarrow x = \frac{24}{-6}$$

$$(+ \div - = -)$$

$$\Rightarrow x = -4$$

$$\text{Ans: (i) } x = 10, (ii) \ x = -4$$

17. The sum of two integers is 773. If one of them is -97 , then find the other. [2]

Let the other integer be x .

$$x + (-97) = 773$$

$$\Rightarrow x = 773 - (-97)$$

$$\Rightarrow x = 773 + 97$$

$$\Rightarrow x = 870$$

$$\text{Ans: } 870$$

18. What number should be added to 43 to get -101 ? [2]

Let the number be x .

$$43 + x = -101$$

$$\Rightarrow x = -101 - 43$$

$$\Rightarrow x = -144$$

$$\text{Ans: } -144$$

19. What number should be subtracted from 28 to get -161 ? [3]

Let the number be x .

$$28 - x = -161$$

$$\Rightarrow -x = -161 - 28$$

$$\Rightarrow -x = -189$$

$$\Rightarrow x = 189$$

Ans: 189

20. (i) The product of two integers is 867. If one of them is -17 , then find the other. (ii) The difference of two integers is 66. If the smaller of them is 89, find the larger. [5]

(i) Let the other integer be x .

$$x \times (-17) = 867$$

$$\Rightarrow x = \frac{867}{-17}$$

Long division: $86 \div 17 = 5$, remainder 1; $17 \div 17 = 1$, remainder 0

$$(+ \div - = -)$$

$$\Rightarrow x = -51$$

(ii) Let the larger integer be x .

Larger $-$ smaller $=$ difference

$$x - 89 = 66$$

$$\Rightarrow x = 66 + 89$$

$$\Rightarrow x = 155$$

Ans: (i) -51 , (ii) 155
