

Simple Equations (on Integers)

Question Paper, Set 08

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. Find x if $x + 49 = 52$. [1 mark]
2. If $x - 67 = 29$, then find x . [1 mark]
3. Solve $x \times 7 = 616$. [1 mark]
4. Find x if $\frac{x}{7} = 109$. [1 mark]
5. Solve: (i) $x + 73 = -10$ (ii) $x - 11 = -14$ (iii) $x \times 3 = 123$ (iv) $\frac{x}{29} = 420$ [5 marks]
6. Solve $x - 118 = -603$. [1 mark]
7. Solve $x \times 17 = 120275$. [2 marks]
8. Solve $\frac{x}{-9} = -78$. [1 mark]
9. Find x if $7x - 46 = -277$. [2 marks]
10. Solve $\frac{x}{7} - 124 = -171$. [3 marks]
11. Solve: (i) $\frac{2x}{7} + 5 = -13$ (ii) $\frac{8x}{5} - 13 = -53$ [5 marks]
12. If $x + 40 = -20 - x$, then find x . [2 marks]
13. If $2x - 28 = 62 - 7x$, then find x . [3 marks]
14. Solve $8x - 24 + 3x = 24 + 5x$. [3 marks]
15. Solve $21 - 3x = -9$. [2 marks]
16. Solve: (i) $10x + 153 = 45 + 13x$ (ii) $-4x + 12 - 5x = -51$ [5 marks]
17. The sum of two integers is 176. If one of them is 42, then find the other. [2 marks]
18. What number should be added to 104 to get 186? [2 marks]
19. What number should be subtracted from -130 to get -127 ? [3 marks]

- 20.** (i) The product of two integers is -1235 . If one of them is 19 , then find the other. (ii) The difference of two integers is 78 . If the smaller of them is -18 , find the larger. [5 marks]
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Key sheet

Q	Answer
1	$x = 3$
2	$x = 96$
3	$x = 88$
4	$x = 763$
5	(i) $x = -83$, (ii) $x = -3$, (iii) $x = 41$, (iv) $x = 12180$
6	$x = -485$
7	$x = 7075$
8	$x = 702$
9	$x = -33$
10	$x = -329$
11	(i) $x = -63$, (ii) $x = -25$
12	$x = -30$
13	$x = 10$
14	$x = 8$
15	$x = 10$
16	(i) $x = 36$, (ii) $x = 7$
17	134
18	82
19	-3
20	(i) -65, (ii) 60

Solutions

1. Find x if $x + 49 = 52$. [1]

$$x + 49 = 52$$

$$\Rightarrow x = 52 - 49$$

$$\Rightarrow x = 3$$

$$\text{Ans: } x = 3$$

2. If $x - 67 = 29$, then find x . [1]

$$x - 67 = 29$$

$$\Rightarrow x = 29 + 67$$

$$\Rightarrow x = 96$$

$$\text{Ans: } x = 96$$

3. Solve $x \times 7 = 616$. [1]

$$x \times 7 = 616$$

$$\Rightarrow x = \frac{616}{7}$$

$$\Rightarrow x = 88$$

$$\text{Ans: } x = 88$$

4. Find x if $\frac{x}{7} = 109$. [1]

$$\frac{x}{7} = 109$$

$$\Rightarrow x = 109 \times 7$$

$$\Rightarrow x = 763$$

$$\text{Ans: } x = 763$$

5. Solve: (i) $x + 73 = -10$ (ii) $x - 11 = -14$ (iii) $x \times 3 = 123$ (iv) $\frac{x}{29} = 420$ [5]

$$(i) \ x + 73 = -10$$

$$\Rightarrow x = -10 - 73$$

$$\Rightarrow x = -83$$

$$(ii) \ x - 11 = -14$$

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

$$\Rightarrow x = -3$$

$$(iii) \ x \times 3 = 123$$

$$\Rightarrow x = \frac{123}{3}$$

$$\Rightarrow x = 41$$

$$(iv) \ \frac{x}{29} = 420$$

$$\Rightarrow x = 420 \times 29$$

$$\Rightarrow x = 12180$$

$$\text{Ans: (i) } x = -83, (ii) \ x = -3, (iii) \ x = 41, (iv) \ x = 12180$$

6. Solve $x - 118 = -603$. [1]

$$x - 118 = -603$$

$$\Rightarrow x = -603 + 118$$

Column subtraction: $603 - 118 = 485$; the bigger number is negative, so x is negative

$$\Rightarrow x = -485$$

Ans: $x = -485$

7. Solve $x \times 17 = 120275$. [2]

$$x \times 17 = 120275$$

$$\Rightarrow x = \frac{120275}{17}$$

Long division: $120 \div 17 = 7$, remainder 1; $12 \div 17 = 0$, remainder 12; $127 \div 17 = 7$, remainder 8; $85 \div 17 = 5$, remainder 0

$$\Rightarrow x = 7075$$

Ans: $x = 7075$

8. Solve $\frac{x}{-9} = -78$. [1]

$$\frac{x}{-9} = -78$$

$$\Rightarrow x = (-78) \times (-9)$$

$$- \times - = +$$

$$\Rightarrow x = 702$$

Ans: $x = 702$

9. Find x if $7x - 46 = -277$. [2]

$$7x - 46 = -277$$

$$\Rightarrow 7x = -277 + 46$$

$$\Rightarrow 7x = -231$$

$$\Rightarrow x = \frac{-231}{7}$$

$$\Rightarrow x = -33$$

Ans: $x = -33$

10. Solve $\frac{x}{7} - 124 = -171$. [3]

$$\frac{x}{7} - 124 = -171$$

$$\Rightarrow \frac{x}{7} = -171 + 124$$

$$\Rightarrow \frac{x}{7} = -47$$

$$\Rightarrow x = -47 \times 7$$

$$\Rightarrow x = -329$$

Ans: $x = -329$

11. Solve: (i) $\frac{2x}{7} + 5 = -13$ (ii) $\frac{8x}{5} - 13 = -53$ [5]

$$(i) \frac{2x}{7} + 5 = -13$$

$$\Rightarrow \frac{2x}{7} = -13 - 5$$

$$\Rightarrow \frac{2x}{7} = -18$$

$$\Rightarrow 2x = -18 \times 7$$

$$\Rightarrow 2x = -126$$

$$\Rightarrow x = \frac{-126}{2}$$

$$\Rightarrow x = -63$$

$$(ii) \frac{8x}{5} - 13 = -53$$

$$\Rightarrow \frac{8x}{5} = -53 + 13$$

$$\Rightarrow \frac{8x}{5} = -40$$

$$\Rightarrow 8x = -40 \times 5$$

$$\Rightarrow 8x = -200$$

$$\Rightarrow x = \frac{-200}{8}$$

$$\Rightarrow x = -25$$

Ans: (i) $x = -63$, (ii) $x = -25$

12. If $x + 40 = -20 - x$, then find x . [2]

$$x + 40 = -20 - x$$

$$\Rightarrow x + x = -20 - 40$$

$$\Rightarrow 2x = -60$$

$$\Rightarrow x = \frac{-60}{2}$$

$$\Rightarrow x = -30$$

Ans: $x = -30$

13. If $2x - 28 = 62 - 7x$, then find x . [3]

$$2x - 28 = 62 - 7x$$

$$\Rightarrow 2x + 7x = 62 + 28$$

$$\Rightarrow 9x = 90$$

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

$$\Rightarrow x = 10$$

Ans: $x = 10$

14. Solve $8x - 24 + 3x = 24 + 5x$. [3]

$$8x - 24 + 3x = 24 + 5x$$

$$\Rightarrow 11x - 24 = 24 + 5x$$

$$\Rightarrow 11x - 5x = 24 + 24$$

$$\Rightarrow 6x = 48$$

$$\Rightarrow x = \frac{48}{6}$$

$$\Rightarrow x = 8$$

Ans: $x = 8$

15. Solve $21 - 3x = -9$. [2]

$$21 - 3x = -9$$

$$\Rightarrow -3x = -9 - 21$$

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

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

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

$$\Rightarrow x = 10$$

Ans: $x = 10$

16. Solve: (i) $10x + 153 = 45 + 13x$ (ii) $-4x + 12 - 5x = -51$ [5]

$$(i) 10x + 153 = 45 + 13x$$

$$\Rightarrow 10x - 13x = 45 - 153$$

$$\Rightarrow -3x = -108$$

$$\Rightarrow x = \frac{-108}{-3}$$

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

$$\Rightarrow x = 36$$

$$(ii) -4x + 12 - 5x = -51$$

$$\Rightarrow -9x + 12 = -51$$

$$\Rightarrow -9x = -51 - 12$$

$$\Rightarrow -9x = -63$$

$$\Rightarrow x = \frac{-63}{-9}$$

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

$$\Rightarrow x = 7$$

Ans: (i) $x = 36$, (ii) $x = 7$

17. The sum of two integers is 176. If one of them is 42, then find the other. [2]

Let the other integer be x .

$$x + 42 = 176$$

$$\Rightarrow x = 176 - 42$$

$$\Rightarrow x = 134$$

Ans: 134

18. What number should be added to 104 to get 186? [2]

Let the number be x .

$$104 + x = 186$$

$$\Rightarrow x = 186 - 104$$

$$\Rightarrow x = 82$$

Ans: 82

19. What number should be subtracted from -130 to get -127 ? [3]

Let the number be x .

$$-130 - x = -127$$

$$\Rightarrow -x = -127 + 130$$

$$\Rightarrow -x = 3$$

$$\Rightarrow x = -3$$

Ans: -3

20. (i) The product of two integers is -1235 . If one of them is 19 , then find the other. (ii) The difference of two integers is 78 . If the smaller of them is -18 , find the larger. [5]

(i) Let the other integer be x .

$$x \times 19 = -1235$$

$$\Rightarrow x = \frac{-1235}{19}$$

Long division: $123 \div 19 = 6$, remainder 9 ; $95 \div 19 = 5$, remainder 0

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

$$\Rightarrow x = -65$$

(ii) Let the larger integer be x .

Larger $-$ smaller $=$ difference

$$x - (-18) = 78$$

$$\Rightarrow x = 78 + (-18)$$

$$\Rightarrow x = 60$$

Ans: (i) -65 , (ii) 60
