

Simple Equations (on Integers)

Question Paper, Set 09

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 $x + 88 = 15$. [1 mark]
2. If $x - 80 = -79$, then find x . [1 mark]
3. Solve $4 \times x = 244$. [1 mark]
4. Find x if $\frac{x}{2} = 122$. [1 mark]
5. Solve: (i) $x + 95 = -47$ (ii) $x - 79 = -43$ (iii) $x \times 6 = 330$ (iv) $\frac{x}{20} = 330$ [5 marks]
6. If $x + 28372 = 120589$, then find x . [1 mark]
7. Solve $x \times 27 = 2943$. [2 marks]
8. Find x if $\frac{x}{-3} = -88$. [1 mark]
9. Find x if $6x - 103 = -25$. [2 marks]
10. Find x if $\frac{x}{3} + 143 = 115$. [3 marks]
11. Solve: (i) $\frac{2x}{3} + 10 = 22$ (ii) $\frac{9x}{8} - 2 = -65$ [5 marks]
12. Solve $x - 6 = 30 - x$. [2 marks]
13. Find x if $9x - 24 = -200 - 7x$. [3 marks]
14. If $3x - 7 + 9x = 59 + 6x$, then find x . [3 marks]
15. If $36 - 4x = 68$, then find x . [2 marks]
16. Solve: (i) $6x + 45 = -5 + 8x$ (ii) $-3x + 34 - 6x = 106$ [5 marks]
17. The sum of two integers is -98 . If one of them is 622 , then find the other. [2 marks]
18. What number should be added to -292 to get 58 ? [2 marks]
19. What number should be subtracted from -178 to get 189 ? [3 marks]

- 20.** (i) The product of two integers is -1274 . If one of them is 14 , then find the other. (ii) The difference of two integers is 19 . If the larger of them is 96 , find the smaller. [5 marks]
-

Key sheet

Q	Answer
1	$x = -73$
2	$x = 1$
3	$x = 61$
4	$x = 244$
5	(i) $x = -142$, (ii) $x = 36$, (iii) $x = 55$, (iv) $x = 6600$
6	$x = 92217$
7	$x = 109$
8	$x = 264$
9	$x = 13$
10	$x = -84$
11	(i) $x = 18$, (ii) $x = -56$
12	$x = 18$
13	$x = -11$
14	$x = 11$
15	$x = -8$
16	(i) $x = 25$, (ii) $x = -8$
17	-720
18	350
19	-367
20	(i) -91 , (ii) 77

Solutions

1. Find x if $x + 88 = 15$. [1]

$$x + 88 = 15$$

$$\Rightarrow x = 15 - 88$$

$$\Rightarrow x = -73$$

$$\text{Ans: } x = -73$$

2. If $x - 80 = -79$, then find x . [1]

$$x - 80 = -79$$

$$\Rightarrow x = -79 + 80$$

$$\Rightarrow x = 1$$

$$\text{Ans: } x = 1$$

3. Solve $4 \times x = 244$. [1]

$$4 \times x = 244$$

$$\Rightarrow x = \frac{244}{4}$$

$$\Rightarrow x = 61$$

$$\text{Ans: } x = 61$$

4. Find x if $\frac{x}{2} = 122$. [1]

$$\frac{x}{2} = 122$$

$$\Rightarrow x = 122 \times 2$$

$$\Rightarrow x = 244$$

$$\text{Ans: } x = 244$$

5. Solve: (i) $x + 95 = -47$ (ii) $x - 79 = -43$ (iii) $x \times 6 = 330$ (iv) $\frac{x}{20} = 330$ [5]

$$(i) \ x + 95 = -47$$

$$\Rightarrow x = -47 - 95$$

$$\Rightarrow x = -142$$

$$(ii) \ x - 79 = -43$$

$$\Rightarrow x = -43 + 79$$

$$\Rightarrow x = 36$$

$$(iii) \ x \times 6 = 330$$

$$\Rightarrow x = \frac{330}{6}$$

$$\Rightarrow x = 55$$

$$(iv) \ \frac{x}{20} = 330$$

$$\Rightarrow x = 330 \times 20$$

$$\Rightarrow x = 6600$$

$$\text{Ans: (i) } x = -142, (ii) \ x = 36, (iii) \ x = 55, (iv) \ x = 6600$$

6. If $x + 28372 = 120589$, then find x . [1]

$$x + 28372 = 120589$$

$$\Rightarrow x = 120589 - 28372$$

$$\text{Column subtraction: } 120589 - 28372 = 92217$$

$$\Rightarrow x = 92217$$

$$\text{Ans: } x = 92217$$

7. Solve $x \times 27 = 2943$. [2]

$$x \times 27 = 2943$$

$$\Rightarrow x = \frac{2943}{27}$$

$$\text{Long division: } 29 \div 27 = 1, \text{ remainder } 2; 24 \div 27 = 0, \text{ remainder } 24; 243 \div 27 = 9, \text{ remainder } 0$$

$$\Rightarrow x = 109$$

$$\text{Ans: } x = 109$$

8. Find x if $\frac{x}{-3} = -88$. [1]

$$\frac{x}{-3} = -88$$

$$\Rightarrow x = (-88) \times (-3)$$

$$- \times - = +$$

$$\Rightarrow x = 264$$

$$\text{Ans: } x = 264$$

9. Find x if $6x - 103 = -25$. [2]

$$6x - 103 = -25$$

$$\Rightarrow 6x = -25 + 103$$

$$\Rightarrow 6x = 78$$

$$\Rightarrow x = \frac{78}{6}$$

$$\Rightarrow x = 13$$

$$\text{Ans: } x = 13$$

10. Find x if $\frac{x}{3} + 143 = 115$. [3]

$$\frac{x}{3} + 143 = 115$$

$$\Rightarrow \frac{x}{3} = 115 - 143$$

$$\Rightarrow \frac{x}{3} = -28$$

$$\Rightarrow x = -28 \times 3$$

$$\Rightarrow x = -84$$

$$\text{Ans: } x = -84$$

11. Solve: (i) $\frac{2x}{3} + 10 = 22$ (ii) $\frac{9x}{8} - 2 = -65$ [5]

$$(i) \frac{2x}{3} + 10 = 22$$

$$\Rightarrow \frac{2x}{3} = 22 - 10$$

$$\Rightarrow \frac{2x}{3} = 12$$

$$\Rightarrow 2x = 12 \times 3$$

$$\Rightarrow 2x = 36$$

$$\Rightarrow x = \frac{36}{2}$$

$$\Rightarrow x = 18$$

$$(ii) \frac{9x}{8} - 2 = -65$$

$$\Rightarrow \frac{9x}{8} = -65 + 2$$

$$\Rightarrow \frac{9x}{8} = -63$$

$$\Rightarrow 9x = -63 \times 8$$

$$\Rightarrow 9x = -504$$

$$\Rightarrow x = \frac{-504}{9}$$

$$\Rightarrow x = -56$$

Ans: (i) $x = 18$, (ii) $x = -56$

12. Solve $x - 6 = 30 - x$. [2]

$$x - 6 = 30 - x$$

$$\Rightarrow x + x = 30 + 6$$

$$\Rightarrow 2x = 36$$

$$\Rightarrow x = \frac{36}{2}$$

$$\Rightarrow x = 18$$

Ans: $x = 18$

13. Find x if $9x - 24 = -200 - 7x$. [3]

$$9x - 24 = -200 - 7x$$

$$\Rightarrow 9x + 7x = -200 + 24$$

$$\Rightarrow 16x = -176$$

$$\Rightarrow x = \frac{-176}{16}$$

$$\Rightarrow x = -11$$

Ans: $x = -11$

14. If $3x - 7 + 9x = 59 + 6x$, then find x . [3]

$$3x - 7 + 9x = 59 + 6x$$

$$\Rightarrow 12x - 7 = 59 + 6x$$

$$\Rightarrow 12x - 6x = 59 + 7$$

$$\Rightarrow 6x = 66$$

$$\Rightarrow x = \frac{66}{6}$$

$$\Rightarrow x = 11$$

Ans: $x = 11$

15. If $36 - 4x = 68$, then find x . [2]

$$36 - 4x = 68$$

$$\Rightarrow -4x = 68 - 36$$

$$\Rightarrow -4x = 32$$

$$\Rightarrow x = \frac{32}{-4}$$

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

$$\Rightarrow x = -8$$

$$\text{Ans: } x = -8$$

16. Solve: (i) $6x + 45 = -5 + 8x$ (ii) $-3x + 34 - 6x = 106$ [5]

$$(i) \quad 6x + 45 = -5 + 8x$$

$$\Rightarrow 6x - 8x = -5 - 45$$

$$\Rightarrow -2x = -50$$

$$\Rightarrow x = \frac{-50}{-2}$$

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

$$\Rightarrow x = 25$$

$$(ii) \quad -3x + 34 - 6x = 106$$

$$\Rightarrow -9x + 34 = 106$$

$$\Rightarrow -9x = 106 - 34$$

$$\Rightarrow -9x = 72$$

$$\Rightarrow x = \frac{72}{-9}$$

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

$$\Rightarrow x = -8$$

$$\text{Ans: (i) } x = 25, (ii) \quad x = -8$$

17. The sum of two integers is -98 . If one of them is 622 , then find the other. [2]

Let the other integer be x .

$$x + 622 = -98$$

$$\Rightarrow x = -98 - 622$$

$$\Rightarrow x = -720$$

$$\text{Ans: } -720$$

18. What number should be added to -292 to get 58 ? [2]

Let the number be x .

$$-292 + x = 58$$

$$\Rightarrow x = 58 - (-292)$$

$$\Rightarrow x = 58 + 292$$

$$\Rightarrow x = 350$$

$$\text{Ans: } 350$$

19. What number should be subtracted from -178 to get 189 ? [3]

Let the number be x .

$$-178 - x = 189$$

$$\Rightarrow -x = 189 + 178$$

$$\Rightarrow -x = 367$$

$$\Rightarrow x = -367$$

Ans: -367

20. (i) The product of two integers is -1274 . If one of them is 14 , then find the other. (ii) The difference of two integers is 19 . If the larger of them is 96 , find the smaller. [5]

(i) Let the other integer be x .

$$x \times 14 = -1274$$

$$\Rightarrow x = \frac{-1274}{14}$$

Long division: $127 \div 14 = 9$, remainder 1 ; $14 \div 14 = 1$, remainder 0

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

$$\Rightarrow x = -91$$

(ii) Let the smaller integer be x .

Larger $-$ smaller $=$ difference

$$96 - x = 19$$

$$\Rightarrow -x = 19 - 96$$

$$\Rightarrow -x = -77$$

$$\Rightarrow x = 77$$

Ans: (i) -91 , (ii) 77
