

Simple Equations (on Integers)

Question Paper, Set 10

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 $x + 17 = -16$. [1 mark]
2. Solve $x - 95 = 93$. [1 mark]
3. Find x if $6 \times x = 216$. [1 mark]
4. Find x if $\frac{x}{8} = 12$. [1 mark]
5. Solve: (i) $x + 38 = -57$ (ii) $x - 25 = -48$ (iii) $4 \times x = 176$ (iv) $\frac{x}{28} = 722$ [5 marks]
6. Solve $x - 336 = -936$. [1 mark]
7. If $x \times 29 = 23316$, then find x . [2 marks]
8. If $\frac{x}{-7} = -43$, then find x . [1 mark]
9. Solve $8x + 32 = 320$. [2 marks]
10. If $\frac{x}{3} + 87 = 160$, then find x . [3 marks]
11. Solve: (i) $\frac{6x}{5} + 20 = -4$ (ii) $\frac{6x}{5} - 40 = -52$ [5 marks]
12. Solve $x + 37 = 33 - x$. [2 marks]
13. If $4x + 2 = -70 - 2x$, then find x . [3 marks]
14. Find x if $6x + 22 + 3x = -26 + 5x$. [3 marks]
15. If $69 - 7x = 41$, then find x . [2 marks]
16. Solve: (i) $4x + 178 = 55 + 5x$ (ii) $-2x - 17 - 7x = 19$ [5 marks]
17. The sum of two integers is -682 . If one of them is 213 , then find the other. [2 marks]
18. What number should be added to 164 to get -135 ? [2 marks]
19. What number should be subtracted from -62 to get 22 ? [3 marks]

- 20.** (i) The product of two integers is -506 . If one of them is 11 , then find the other. (ii) The difference of two integers is 19 . If the smaller of them is 59 , find the larger. [5 marks]
-

Key sheet

Q	Answer
1	$x = -33$
2	$x = 188$
3	$x = 36$
4	$x = 96$
5	(i) $x = -95$, (ii) $x = -23$, (iii) $x = 44$, (iv) $x = 20216$
6	$x = -600$
7	$x = 804$
8	$x = 301$
9	$x = 36$
10	$x = 219$
11	(i) $x = -20$, (ii) $x = -10$
12	$x = -2$
13	$x = -12$
14	$x = -12$
15	$x = 4$
16	(i) $x = 123$, (ii) $x = -4$
17	-895
18	-299
19	-84
20	(i) -46 , (ii) 78

Solutions

1. Solve $x + 17 = -16$. [1]

$$x + 17 = -16$$

$$\Rightarrow x = -16 - 17$$

$$\Rightarrow x = -33$$

$$\text{Ans: } x = -33$$

2. Solve $x - 95 = 93$. [1]

$$x - 95 = 93$$

$$\Rightarrow x = 93 + 95$$

$$\Rightarrow x = 188$$

$$\text{Ans: } x = 188$$

3. Find x if $6 \times x = 216$. [1]

$$6 \times x = 216$$

$$\Rightarrow x = \frac{216}{6}$$

$$\Rightarrow x = 36$$

$$\text{Ans: } x = 36$$

4. Find x if $\frac{x}{8} = 12$. [1]

$$\frac{x}{8} = 12$$

$$\Rightarrow x = 12 \times 8$$

$$\Rightarrow x = 96$$

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

5. Solve: (i) $x + 38 = -57$ (ii) $x - 25 = -48$ (iii) $4 \times x = 176$ (iv) $\frac{x}{28} = 722$ [5]

$$(i) \ x + 38 = -57$$

$$\Rightarrow x = -57 - 38$$

$$\Rightarrow x = -95$$

$$(ii) \ x - 25 = -48$$

$$\Rightarrow x = -48 + 25$$

$$\Rightarrow x = -23$$

$$(iii) \ 4 \times x = 176$$

$$\Rightarrow x = \frac{176}{4}$$

$$\Rightarrow x = 44$$

$$(iv) \ \frac{x}{28} = 722$$

$$\Rightarrow x = 722 \times 28$$

$$\Rightarrow x = 20216$$

$$\text{Ans: (i) } x = -95, (ii) \ x = -23, (iii) \ x = 44, (iv) \ x = 20216$$

6. Solve $x - 336 = -936$. [1]

$$x - 336 = -936$$

$$\Rightarrow x = -936 + 336$$

Column subtraction: $936 - 336 = 600$; the bigger number is negative, so x is negative

$$\Rightarrow x = -600$$

Ans: $x = -600$

7. If $x \times 29 = 23316$, then find x . [2]

$$x \times 29 = 23316$$

$$\Rightarrow x = \frac{23316}{29}$$

Long division: $233 \div 29 = 8$, remainder 1; $11 \div 29 = 0$, remainder 11; $116 \div 29 = 4$, remainder 0

$$\Rightarrow x = 804$$

Ans: $x = 804$

8. If $\frac{x}{-7} = -43$, then find x . [1]

$$\frac{x}{-7} = -43$$

$$\Rightarrow x = (-43) \times (-7)$$

$$- \times - = +$$

$$\Rightarrow x = 301$$

Ans: $x = 301$

9. Solve $8x + 32 = 320$. [2]

$$8x + 32 = 320$$

$$\Rightarrow 8x = 320 - 32$$

$$\Rightarrow 8x = 288$$

$$\Rightarrow x = \frac{288}{8}$$

$$\Rightarrow x = 36$$

Ans: $x = 36$

10. If $\frac{x}{3} + 87 = 160$, then find x . [3]

$$\frac{x}{3} + 87 = 160$$

$$\Rightarrow \frac{x}{3} = 160 - 87$$

$$\Rightarrow \frac{x}{3} = 73$$

$$\Rightarrow x = 73 \times 3$$

$$\Rightarrow x = 219$$

Ans: $x = 219$

11. Solve: (i) $\frac{6x}{5} + 20 = -4$ (ii) $\frac{6x}{5} - 40 = -52$ [5]

$$(i) \frac{6x}{5} + 20 = -4$$

$$\Rightarrow \frac{6x}{5} = -4 - 20$$

$$\Rightarrow \frac{6x}{5} = -24$$

$$\Rightarrow 6x = -24 \times 5$$

$$\Rightarrow 6x = -120$$

$$\Rightarrow x = \frac{-120}{6}$$

$$\Rightarrow x = -20$$

$$(ii) \frac{6x}{5} - 40 = -52$$

$$\Rightarrow \frac{6x}{5} = -52 + 40$$

$$\Rightarrow \frac{6x}{5} = -12$$

$$\Rightarrow 6x = -12 \times 5$$

$$\Rightarrow 6x = -60$$

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

$$\Rightarrow x = -10$$

Ans: (i) $x = -20$, (ii) $x = -10$

12. Solve $x + 37 = 33 - x$. [2]

$$x + 37 = 33 - x$$

$$\Rightarrow x + x = 33 - 37$$

$$\Rightarrow 2x = -4$$

$$\Rightarrow x = \frac{-4}{2}$$

$$\Rightarrow x = -2$$

Ans: $x = -2$

13. If $4x + 2 = -70 - 2x$, then find x . [3]

$$4x + 2 = -70 - 2x$$

$$\Rightarrow 4x + 2x = -70 - 2$$

$$\Rightarrow 6x = -72$$

$$\Rightarrow x = \frac{-72}{6}$$

$$\Rightarrow x = -12$$

Ans: $x = -12$

14. Find x if $6x + 22 + 3x = -26 + 5x$. [3]

$$6x + 22 + 3x = -26 + 5x$$

$$\Rightarrow 9x + 22 = -26 + 5x$$

$$\Rightarrow 9x - 5x = -26 - 22$$

$$\Rightarrow 4x = -48$$

$$\Rightarrow x = \frac{-48}{4}$$

$$\Rightarrow x = -12$$

Ans: $x = -12$

15. If $69 - 7x = 41$, then find x . [2]

$$69 - 7x = 41$$

$$\Rightarrow -7x = 41 - 69$$

$$\Rightarrow -7x = -28$$

$$\Rightarrow x = \frac{-28}{-7}$$

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

$$\Rightarrow x = 4$$

Ans: $x = 4$

16. Solve: (i) $4x + 178 = 55 + 5x$ (ii) $-2x - 17 - 7x = 19$ [5]

$$(i) \quad 4x + 178 = 55 + 5x$$

$$\Rightarrow 4x - 5x = 55 - 178$$

$$\Rightarrow (-1)x = -123$$

$$\Rightarrow x = \frac{-123}{-1}$$

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

$$\Rightarrow x = 123$$

$$(ii) \quad -2x - 17 - 7x = 19$$

$$\Rightarrow -9x - 17 = 19$$

$$\Rightarrow -9x = 19 + 17$$

$$\Rightarrow -9x = 36$$

$$\Rightarrow x = \frac{36}{-9}$$

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

$$\Rightarrow x = -4$$

Ans: (i) $x = 123$, (ii) $x = -4$

17. The sum of two integers is -682 . If one of them is 213 , then find the other. [2]

Let the other integer be x .

$$x + 213 = -682$$

$$\Rightarrow x = -682 - 213$$

$$\Rightarrow x = -895$$

Ans: -895

18. What number should be added to 164 to get -135 ? [2]

Let the number be x .

$$164 + x = -135$$

$$\Rightarrow x = -135 - 164$$

$$\Rightarrow x = -299$$

Ans: -299

19. What number should be subtracted from -62 to get 22 ? [3]

Let the number be x .

$$-62 - x = 22$$

$$\Rightarrow -x = 22 + 62$$

$$\Rightarrow -x = 84$$

$$\Rightarrow x = -84$$

Ans: -84

20. (i) The product of two integers is -506 . If one of them is 11 , then find the other. (ii) The difference of two integers is 19 . If the smaller of them is 59 , find the larger. [5]

(i) Let the other integer be x .

$$x \times 11 = -506$$

$$\Rightarrow x = \frac{-506}{11}$$

Long division: $50 \div 11 = 4$, remainder 6 ; $66 \div 11 = 6$, remainder 0

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

$$\Rightarrow x = -46$$

(ii) Let the larger integer be x .

Larger $-$ smaller $=$ difference

$$x - 59 = 19$$

$$\Rightarrow x = 19 + 59$$

$$\Rightarrow x = 78$$

Ans: (i) -46 , (ii) 78
