

# Simple Equations (on Integers)

## Question Paper, Set 05

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  $x + 71 = -34$ . [1 mark]
2. Solve  $x - 48 = -8$ . [1 mark]
3. Solve  $6 \times x = 198$ . [1 mark]
4. Find  $x$  if  $\frac{x}{3} = 101$ . [1 mark]
5. Solve: (i)  $x + 65 = -11$  (ii)  $x - 35 = -56$  (iii)  $3 \times x = 213$  (iv)  $\frac{x}{16} = 820$  [5 marks]
6. Find  $x$  if  $x + 98539 = 160411$ . [1 mark]
7. Solve  $x \times 14 = 127204$ . [2 marks]
8. Find  $x$  if  $\frac{x}{-6} = 39$ . [1 mark]
9. If  $4x + 97 = 61$ , then find  $x$ . [2 marks]
10. Solve  $\frac{x}{9} - 23 = 2$ . [3 marks]
11. Solve: (i)  $\frac{3x}{2} + 39 = 33$  (ii)  $\frac{2x}{9} - 4 = -10$  [5 marks]
12. If  $x + 38 = 32 - x$ , then find  $x$ . [2 marks]
13. Solve  $2x - 9 = -81 - 7x$ . [3 marks]
14. Find  $x$  if  $6x - 7 + 4x = -3 + 8x$ . [3 marks]
15. If  $80 - 7x = -116$ , then find  $x$ . [2 marks]
16. Solve: (i)  $9x - 12 = -92 + 11x$  (ii)  $-4x - 9 - 8x = -21$  [5 marks]
17. The sum of two integers is 266. If one of them is 912, then find the other. [2 marks]
18. What number should be added to  $-254$  to get 83? [2 marks]
19. What number should be subtracted from  $-101$  to get 91? [3 marks]

- 20.** (i) The product of two integers is  $-1204$ . If one of them is  $28$ , then find the other. (ii) The difference of two integers is  $15$ . If the larger of them is  $95$ , find the smaller. [5 marks]
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## Key sheet

| Q  | Answer                                                             |
|----|--------------------------------------------------------------------|
| 1  | $x = -105$                                                         |
| 2  | $x = 40$                                                           |
| 3  | $x = 33$                                                           |
| 4  | $x = 303$                                                          |
| 5  | (i) $x = -76$ , (ii) $x = -21$ , (iii) $x = 71$ , (iv) $x = 13120$ |
| 6  | $x = 61872$                                                        |
| 7  | $x = 9086$                                                         |
| 8  | $x = -234$                                                         |
| 9  | $x = -9$                                                           |
| 10 | $x = 225$                                                          |
| 11 | (i) $x = -4$ , (ii) $x = -27$                                      |
| 12 | $x = -3$                                                           |
| 13 | $x = -8$                                                           |
| 14 | $x = 2$                                                            |
| 15 | $x = 28$                                                           |
| 16 | (i) $x = 40$ , (ii) $x = 1$                                        |
| 17 | $-646$                                                             |
| 18 | $337$                                                              |
| 19 | $-192$                                                             |
| 20 | (i) $-43$ , (ii) $80$                                              |

## Solutions

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1. Find  $x$  if  $x + 71 = -34$ . [1]

$$x + 71 = -34$$

$$\Rightarrow x = -34 - 71$$

$$\Rightarrow x = -105$$

$$\text{Ans: } x = -105$$

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2. Solve  $x - 48 = -8$ . [1]

$$x - 48 = -8$$

$$\Rightarrow x = -8 + 48$$

$$\Rightarrow x = 40$$

$$\text{Ans: } x = 40$$

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3. Solve  $6 \times x = 198$ . [1]

$$6 \times x = 198$$

$$\Rightarrow x = \frac{198}{6}$$

$$\Rightarrow x = 33$$

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

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4. Find  $x$  if  $\frac{x}{3} = 101$ . [1]

$$\frac{x}{3} = 101$$

$$\Rightarrow x = 101 \times 3$$

$$\Rightarrow x = 303$$

$$\text{Ans: } x = 303$$

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5. Solve: (i)  $x + 65 = -11$  (ii)  $x - 35 = -56$  (iii)  $3 \times x = 213$  (iv)  $\frac{x}{16} = 820$  [5]

$$(i) \ x + 65 = -11$$

$$\Rightarrow x = -11 - 65$$

$$\Rightarrow x = -76$$

$$(ii) \ x - 35 = -56$$

$$\Rightarrow x = -56 + 35$$

$$\Rightarrow x = -21$$

$$(iii) \ 3 \times x = 213$$

$$\Rightarrow x = \frac{213}{3}$$

$$\Rightarrow x = 71$$

$$(iv) \ \frac{x}{16} = 820$$

$$\Rightarrow x = 820 \times 16$$

$$\Rightarrow x = 13120$$

$$\text{Ans: (i) } x = -76, (ii) \ x = -21, (iii) \ x = 71, (iv) \ x = 13120$$

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6. Find  $x$  if  $x + 98539 = 160411$ . [1]

$$x + 98539 = 160411$$

$$\Rightarrow x = 160411 - 98539$$

$$\text{Column subtraction: } 160411 - 98539 = 61872$$

$$\Rightarrow x = 61872$$

$$\text{Ans: } x = 61872$$

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7. Solve  $x \times 14 = 127204$ . [2]

$$x \times 14 = 127204$$

$$\Rightarrow x = \frac{127204}{14}$$

Long division:  $127 \div 14 = 9$ , remainder 1;  $12 \div 14 = 0$ , remainder 12;  $120 \div 14 = 8$ , remainder 8;  $84 \div 14 = 6$ , remainder 0

$$\Rightarrow x = 9086$$

$$\text{Ans: } x = 9086$$

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8. Find  $x$  if  $\frac{x}{-6} = 39$ . [1]

$$\frac{x}{-6} = 39$$

$$\Rightarrow x = 39 \times (-6)$$

$$+ \times - = -$$

$$\Rightarrow x = -234$$

$$\text{Ans: } x = -234$$

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9. If  $4x + 97 = 61$ , then find  $x$ . [2]

$$4x + 97 = 61$$

$$\Rightarrow 4x = 61 - 97$$

$$\Rightarrow 4x = -36$$

$$\Rightarrow x = \frac{-36}{4}$$

$$\Rightarrow x = -9$$

$$\text{Ans: } x = -9$$

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10. Solve  $\frac{x}{9} - 23 = 2$ . [3]

$$\frac{x}{9} - 23 = 2$$

$$\Rightarrow \frac{x}{9} = 2 + 23$$

$$\Rightarrow \frac{x}{9} = 25$$

$$\Rightarrow x = 25 \times 9$$

$$\Rightarrow x = 225$$

$$\text{Ans: } x = 225$$

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11. Solve: (i)  $\frac{3x}{2} + 39 = 33$  (ii)  $\frac{2x}{9} - 4 = -10$  [5]

$$(i) \frac{3x}{2} + 39 = 33$$

$$\Rightarrow \frac{3x}{2} = 33 - 39$$

$$\Rightarrow \frac{3x}{2} = -6$$

$$\Rightarrow 3x = -6 \times 2$$

$$\Rightarrow 3x = -12$$

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

$$\Rightarrow x = -4$$

$$(ii) \frac{2x}{9} - 4 = -10$$

$$\Rightarrow \frac{2x}{9} = -10 + 4$$

$$\Rightarrow \frac{2x}{9} = -6$$

$$\Rightarrow 2x = -6 \times 9$$

$$\Rightarrow 2x = -54$$

$$\Rightarrow x = \frac{-54}{2}$$

$$\Rightarrow x = -27$$

**Ans:** (i)  $x = -4$ , (ii)  $x = -27$

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12. If  $x + 38 = 32 - x$ , then find  $x$ . [2]

$$x + 38 = 32 - x$$

$$\Rightarrow x + x = 32 - 38$$

$$\Rightarrow 2x = -6$$

$$\Rightarrow x = \frac{-6}{2}$$

$$\Rightarrow x = -3$$

**Ans:**  $x = -3$

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13. Solve  $2x - 9 = -81 - 7x$ . [3]

$$2x - 9 = -81 - 7x$$

$$\Rightarrow 2x + 7x = -81 + 9$$

$$\Rightarrow 9x = -72$$

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

$$\Rightarrow x = -8$$

**Ans:**  $x = -8$

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14. Find  $x$  if  $6x - 7 + 4x = -3 + 8x$ . [3]

$$6x - 7 + 4x = -3 + 8x$$

$$\Rightarrow 10x - 7 = -3 + 8x$$

$$\Rightarrow 10x - 8x = -3 + 7$$

$$\Rightarrow 2x = 4$$

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

$$\Rightarrow x = 2$$

**Ans:**  $x = 2$

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15. If  $80 - 7x = -116$ , then find  $x$ . [2]

$$80 - 7x = -116$$

$$\Rightarrow -7x = -116 - 80$$

$$\Rightarrow -7x = -196$$

$$\Rightarrow x = \frac{-196}{-7}$$

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

$$\Rightarrow x = 28$$

**Ans:**  $x = 28$

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16. Solve: (i)  $9x - 12 = -92 + 11x$  (ii)  $-4x - 9 - 8x = -21$  [5]

$$(i) 9x - 12 = -92 + 11x$$

$$\Rightarrow 9x - 11x = -92 + 12$$

$$\Rightarrow -2x = -80$$

$$\Rightarrow x = \frac{-80}{-2}$$

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

$$\Rightarrow x = 40$$

$$(ii) -4x - 9 - 8x = -21$$

$$\Rightarrow -12x - 9 = -21$$

$$\Rightarrow -12x = -21 + 9$$

$$\Rightarrow -12x = -12$$

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

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

$$\Rightarrow x = 1$$

**Ans:** (i)  $x = 40$ , (ii)  $x = 1$

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17. The sum of two integers is 266. If one of them is 912, then find the other. [2]

Let the other integer be  $x$ .

$$x + 912 = 266$$

$$\Rightarrow x = 266 - 912$$

$$\Rightarrow x = -646$$

**Ans:**  $-646$

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18. What number should be added to  $-254$  to get 83? [2]

Let the number be  $x$ .

$$-254 + x = 83$$

$$\Rightarrow x = 83 - (-254)$$

$$\Rightarrow x = 83 + 254$$

$$\Rightarrow x = 337$$

**Ans:** 337

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**19.** What number should be subtracted from  $-101$  to get  $91$ ? [3]

Let the number be  $x$ .

$$-101 - x = 91$$

$$\Rightarrow -x = 91 + 101$$

$$\Rightarrow -x = 192$$

$$\Rightarrow x = -192$$

**Ans:**  $-192$

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**20.** (i) The product of two integers is  $-1204$ . If one of them is  $28$ , then find the other. (ii) The difference of two integers is  $15$ . If the larger of them is  $95$ , find the smaller. [5]

(i) Let the other integer be  $x$ .

$$x \times 28 = -1204$$

$$\Rightarrow x = \frac{-1204}{28}$$

Long division:  $120 \div 28 = 4$ , remainder  $8$ ;  $84 \div 28 = 3$ , remainder  $0$

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

$$\Rightarrow x = -43$$

(ii) Let the smaller integer be  $x$ .

Larger  $-$  smaller  $=$  difference

$$95 - x = 15$$

$$\Rightarrow -x = 15 - 95$$

$$\Rightarrow -x = -80$$

$$\Rightarrow x = 80$$

**Ans:** (i)  $-43$ , (ii)  $80$

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