

ANSWER/INTERPRETATION

TO

**UNDERSTANDING
QUANTITATIVE REASONING**

for

ELEMENTARY SCHOOLS

6

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GATEWAY UNIVERSITIES PUBLISHERS

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EXERCISE 1

Section A

1. C (5, 25)
2. B (5, 5/6)
3. B (10,20)
4. C (5,25)

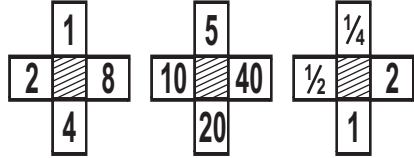
Section B

5. $3 \times 2 = 6$ C
6. $8/2 = 4$ A
7. $12 \times 3 = 36$ D
8. $12/2 = 6$ C
9. $135/3 = 45$ A
10. $27/9 = 3$ A

Section C

11. $4 \times 5 = 20$. B
12. QS. C
13. $7 - 2 = 5$. D
14. $5 + 7 = 12$. B
15. $9 \div 3 = 3$. C

Section D



$$2 \div 2 = 1 \quad 10 \div 2 = 5 \quad \frac{1}{2} \div 2 = \frac{1}{4}$$
$$8 \div 2 = 4 \quad 40 \div 2 = 20 \quad 2 \div 2 = 1$$

OR OR OR

$$1 \times 2 = 2 \quad 5 \times 2 = 10 \quad \frac{1}{4} \times 2 = \frac{1}{2}$$
$$4 \times 2 = 8 \quad 20 \times 2 = 40 \quad 1 \times 2 = 2$$

16. B. 200
17. E. 88
18. B $2 \frac{1}{2}$
19. B $7 \frac{1}{2}$
20. E. 15

EXERCISE 2

Section A

Sample:

Interpretation

$$4 \otimes 3 = 8$$

$$(4 + 3) + 1 = 8$$

$$3\frac{1}{2} \otimes 8 = 12\frac{1}{2}$$

$$(3\frac{1}{2} + 8) + 1 = 12\frac{1}{2}$$

$$7 \otimes 6 = 14$$

$$(7 + 6) + 1 = 14$$

1. $9 + 3 + 1 = 13.$ D

2. $30 - 1 = 29 - 20 = 9$ B

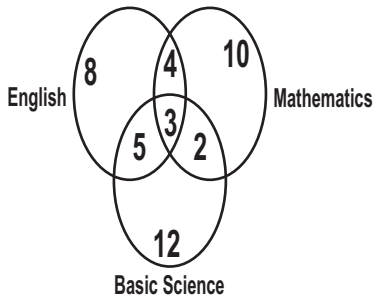
3. $7\frac{1}{2} - \frac{1}{2} - 1 = 13/2 = 6.5.$ A

4. $2\frac{1}{2} + 10 + 1 = 27/2$

$$\frac{1}{2} + 27/2 + 1 = 29/2 = 14\frac{1}{2}.$$
 D

5. $2\frac{2}{3} + 3\frac{2}{5} + 1 = 106/15 - 71/15.$ B

Section B



6. $10 + 4 + 3 + 2 = 19.$ A

7. $12 + 2 + 3 + 5 = 22.$ E

8. 4. C

9. 3. B

Section C

10. 3522. E

11. SEE. C

12. ELM. D

13. 4263. E

14. 2533. A

15. SEEM. C

16. 3465. E

Section D

Sample:

$$\begin{bmatrix} 1 & 2 \\ 4 & 1 \\ 5 & 6 \end{bmatrix} = (1 \times 2) + (4 \times 1) + (5 \times 6) \\ = 2 + 4 + 30 = 36$$

$$\begin{bmatrix} 1 & 8 \\ 2 & 5 \\ 6 & 2 \end{bmatrix} = (1 + 2) + (6 \times 8) - 5 - 2 \\ = 1 + 2 + 48 - 5 - 2 = 44$$

17. $(10 \times 4) + (0 \times 6) + (2 \times 3) \\ = 40 + 0 + 6 = 46.$ C

18. $(4 + 3) + (1 \times 2) - 6 - 5 \\ = 7 + 2 - 6 - 5 = -2.$ E

19. $(6 + 4) + (8 \times 3) - 10 - y = 20 \\ = 10 + 24 - 10 - y = 20 \\ y = 24 - 20 \\ y = 4.$ A

20. $(Y + 3) + (2 \times 4) - 1 - 5 = 16$

$y + 3 + 8 - 1 - 5 = 16$

$y + 5 = 16$

$y = 16 - 5$

$y = 11$

A

EXERCISE 3

Section A

Sample:



$30 \times 2 = 60$
 $30 \times 3 = 90$
 $30 \times 4 = 120$



$8 \times 2 = 16$
 $8 \times 3 = 24$
 $8 \times 4 = 32$



$25 \times 2 = 50$
 $25 \times 3 = 75$
 $25 \times 4 = 100$

1. 3. C
2. 14. B
3. 2. C
4. 60. C
5. 2/3 B

Section B

Sample:

T (1) = $1 \times 2 = 2$

T (0) = $0 \times 2 = 0$

T (3) = $3 \times 2 = 6$

6. $T(1/4) = \frac{1}{4} \times 2 = \frac{1}{2}$. E
7. $T(5) = 5 \times 2 = 10$. D
8. $T(20.5) = 20.5 \times 2 = 41$. E
9. $\frac{75 \times 2}{10 \times 2} = \frac{150}{20}$ 7.5. E

10. $\frac{25 \times 2}{15 \times 2} \div \frac{20 \times 2}{15 \times 2}$
 $= \frac{50}{30} \times \frac{30}{40}$
 $= 1.25$. A

Section C

11. 7. E
12. 1,4,7. B
13. 7,3,6. B
14. 3. B
15. 5. D

Section D

16. 47. D
17. 25. D
18. 36. C
19. $38 \frac{1}{2}$. C
20. 21. B
21. 56. D
22. 40. A

EXERCISE 4

Section A



- $48 \div 4 = 12$ $40 \div 10 = 4$ $26 \div 13 = 2$
 $16 - 12 = 4$ $14 - 4 = 10$ $16 - 3 = 12$
 $48 - 16 = 32$ $40 - 14 = 26$ $26 - 15 = 11$

1. C. 9
2. B. 20
3. D. 111
4. E. 12
5. C. 107
6. B. 57

Section B

$$P \leftarrow Q = \frac{Q - P}{P}$$

$$2 \leftarrow 8 = \frac{8 - 2}{2} = 3$$

$$3 \leftarrow 10 = \frac{10 - 3}{3} = 2\frac{2}{3}$$

$$7. 4 \leftarrow 14 = \frac{14 - 4}{4} = \frac{10}{4} = \frac{5}{2} = 2\frac{1}{2}$$

$$8. X \leftarrow 9 = 2$$

$$\frac{9 - X}{X} = 2$$

$$9 - X = 2X$$

$$9 = 2X + X$$

$$9 = 3X$$

$$X = 3. \quad \text{B}$$

$$9. 2 \leftarrow X = 1$$

$$\frac{X - 2}{2} = 1$$

$$X - 2 = 2$$

$$X = 4. \quad \text{D}$$

$$10. 5 \leftarrow 200 = \frac{200 - 5}{5} = \frac{195}{5} = 39$$

$$11. \frac{1}{5} \leftarrow \frac{2}{5} = \frac{\frac{2}{5} - \frac{1}{5}}{\frac{1}{5}} = \frac{\frac{1}{5}}{\frac{1}{5}} = 1$$

$$12. \frac{2}{7} \leftarrow X = 1\frac{1}{2}$$

$$\frac{X - \frac{2}{7}}{\frac{2}{7}} = \frac{3}{2}$$

$$X - \frac{2}{7} = \frac{3}{2} \times \frac{2}{7}$$

$$X = \frac{2}{7} + \frac{3}{7}$$

$$X = \frac{3}{7} + \frac{2}{7}$$

$$X = \frac{5}{7}. \quad \text{D}$$

Section C

13. C. 5
14. E. None of the children brought only pencil
15. A. 7
16. C. 2

Section D

$$(A \vee B \wedge C) = A + B - C$$

$$(A \vee B \vee C) = A + B + C$$

$$(3 \vee 4) = 3 + 4 = 7$$

$$(5 \wedge 2) = 5 - 2 = 3$$

$$C. \frac{(2 \vee 4)}{(5 \wedge 3)} = \frac{2 + 4}{5 - 3} = \frac{6}{2} = 3$$

$$17. (12 \wedge 8) \vee 2$$

$$(12 - 8) + 2 = 6. \quad \text{B}$$

$$18. (12 \wedge 4) + (8 \wedge 5)$$

$$(12 - 4) + (8 - 5)$$

$$8 + 3 = 11. \quad \text{C}$$

$$19. (15 \vee 3 \wedge 7)$$

$$(15 + 3 - 7)$$

$$(18 - 7) = 11. \quad \text{C}$$

$$A. 20. \frac{8 + X}{4 - 2} = 6$$

$$8 + X = 6(4 - 2)$$

$$8 + X = 12$$

$$X = 12 - 8$$

$$X = 4. \quad \text{D}$$

$$21. (15 + X) - (8 + 4) = 3$$

$$(15 + X) - 12 = 3$$

$$(15 + X) = 3 + 12$$

$$15 + X = 15$$

$$X = 15 - 15$$

$$X = 0. \quad \text{A}$$

EXERCISE 5

Section A

1. D Cr4ss
2. C SP2C311
3. B Fair
4. B 1 fr3c1n
5. C Cure

Section B

$$3 \text{ } \overbrace{\hspace{2cm}} \quad 6 = (3 + 6) \times 3 = 27$$

$$2 \text{ } \overbrace{\hspace{2cm}} \quad 3 = (2 + 3) \times 2 = 10$$

$$4 \text{ } \overbrace{\hspace{2cm}} \quad 2 = (4 + 2) \times 4 = 24$$

$$6. (3 + 1) \times 3 = 12. \text{ A}$$

$$7. (1 + X) \times 1 = 3$$

$$X = 3 - 1$$

$$X = 2. \quad \text{C}$$

$$8. X(X + 4) = 21$$

$$X^2 + 4X - 21 = 0$$

$$(X_2 + 7X) - (3X + 7) = 0$$

$$X(X + 7) - 3(X + 7) = 0$$

$$X + 7 = 0 \quad X - 3 = 0$$

$$X = 0 \quad X = 3$$

E

$$9. (7 + 2) \times 7 = 63. \text{ D.}$$

$$10. (3 + X) \times 3 = 24$$

$$3 + X = 24/3$$

$$3 + X = 8$$

$$X = 8 - 3$$

$$X = 5. \quad \text{C.}$$

Section C

$$8 \text{ } \# \quad 3 = 8 + (2 \times 3) = 14$$

$$3 \text{ } \# \quad 2 = 3 + (2 \times 2) = 7$$

$$7 \text{ } \# \quad 8 = 7 + (2 \times 8) = 23$$

$$11. 5 + (2 \times 1) = 7. \quad \text{B}$$

$$12. 4 + (2 \times y) = 10$$

$$4 + 2y = 10$$

$$2y = 10 - 4$$

$$2y = 6$$

$$y = 3. \quad \text{B}$$

$$13. 7 + (2 \times \frac{1}{2}) = 8. \text{ D}$$

$$14. X + (2 \times 5) = 21$$

$$X + 10 = 21$$

$$X = 21 - 10$$

$$X = 11.$$

$$15. X + (2 \times 23) = 50$$

$$X + 46 = 50$$

$$X = 50 - 46$$

$$X = 4. \quad \text{B}$$

Section D

$$5 \xrightarrow{\quad + \quad} 1 \quad = \frac{5 + 1}{2} = 3$$

$$3 \xrightarrow{\quad + \quad} 4 \quad = \frac{6 - 2}{2} = 2$$

$$6 \xrightarrow{\quad \overleftarrow{\quad} \quad} 2 \quad = \frac{3 + 4}{2} = 3\frac{1}{2}$$

Direction of the arrow indicates the sign to use

$$16. \frac{18 + 6}{2} = 12. \quad \text{B}$$

$$17. \frac{8 + X}{2} = 5. \quad \text{B}$$

$$8 + X = 5 \times 2$$

$$X = 10 - 8$$

$$X = 2. \quad \text{D}$$

$$18. \frac{18 - 16}{2} = 1. \quad \text{E}$$

$$19. \frac{3\frac{1}{2} + 8\frac{1}{2}}{2} = 6. \quad \text{C}$$

$$20. \frac{X - 12}{2} = 4$$

$$\frac{X - 12}{2} = 4$$

$$X - 12 = 4 \times 2$$

$$X = 8 + 12$$

$$X = 20. \quad \text{A}$$

EXERCISE 6

Section A

$$16 \text{ } \perp \text{ } 2$$

$$6 \text{ } \text{---} \text{ } (16 \div 2) - 2 = 6$$

$$\begin{array}{l} 12 \\ | \\ \hline 5\frac{1}{2} \\ | \\ \hline 1\frac{1}{2} \end{array} \quad (12 \div 2) - 5\frac{1}{2} = \frac{1}{2}$$

$$\begin{array}{l} 2 \\ | \\ \hline 0 \\ | \\ \hline 1 \end{array} \quad (2 \div 2) - 0 = 1$$

1. $(X \div 2) - 3 = 8$
 $X \div 2 = 8 + 3$
 $X \div 2 = 11$
 $X = 11 \times 2$
 $X = 22.$

B

2. $(42 \div 2) - 7 = 14$

3. $(11 \div 2) - X = 5$

$$11/2 - 5 = X$$

$$X = \frac{1}{2}$$

A

4. $(36 \div 2) - 9 = 9$

D

5. $(X \div 2) - \frac{1}{2} = 10$

$$X \div 2 = 10 + \frac{1}{2}$$

$$X = 21\frac{1}{2} \times 2/1$$

$$X = 21.$$

A

6. $(106 \div 2) - X = 37$

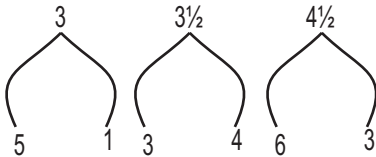
$$53 - X = 37$$

$$X = 53 - 37$$

$$X = 16.$$

B

Section B



$$(5 + 1) \div 2 = 3 \quad (3 + 4) \div 2 = 3\frac{1}{2} \quad (6 + 3) \div 2 = 4\frac{1}{2}$$

$$(3 \times 2) - 1 = 5 \quad (3\frac{1}{2} \times 2) - 4 = 3 \quad (4\frac{1}{2} \times 2) - 3 = 6$$

7. $(18 + 6) \div 2 = 12.$ B

8. $(5 \times 2) - 8 = 2.$ D

9. $(3\frac{1}{2} + 8\frac{1}{2}) \div 2 = 6.$ C

10. $(54 + 30) \div 2 = 42.$ C

11. $(69 \times 2) - 62 = 76$ E

12. $(13\frac{1}{2} \times 2) - 14 = 13$ D

Section C

Sample:

$$\begin{array}{c} 3 \quad 2 \\ \triangle \\ \hline 1 \\ \hline 5 \end{array} \quad (3 \times 2) - 1 = 5$$

$$\begin{array}{c} 3 \quad 7 \\ \triangle \\ \hline 14 \\ \hline 7 \end{array} \quad (3 \times 7) - 14 = 7$$

$$\begin{array}{c} 5 \quad 8 \\ \triangle \\ \hline 21 \\ \hline 19 \end{array} \quad (5 \times 8) - 21 = 19$$

13. $(5 \times 6) - X = 13$

$$X = 17.$$

C

14. $(6 \times 6) - 24 = 12.$ D

15. $(19 \times X) - 95 = 19$

$$19X = 19 + 95$$

$$19X = 114$$

$$X = 114/19$$

$$X = 6.$$

C

16. $(X \times 6) - 47 = 13$

$$6X = 13 + 47$$

$$6X - 60$$

$$X = 10.$$

A

17. $(12 \times X) - 67 = 17$

$$12X = 17 + 67$$

$$12X = 84$$

$$X = 84/12$$

$$X = 7.$$

B

18. $(9 \times 12) - X - 52$

$$108 - X = 52$$

$$X = 108 - 52$$

$$X = 56.$$

D

Section D

Sample:

30	150
6	750

$$6 \times 5 = 30$$

$$30 \times 5 = 150$$

$$150 \times 5 = 750$$

6	12
3	24

$$3 \times 2 = 6$$

$$6 \times 2 = 12$$

$$12 \times 2 = 24$$

8	64
1	512

$$1 \times 8 = 8$$

$$8 \times 8 = 64$$

$$64 \times 8 = 512$$

19. B 1331
 20. B 32
 21. A 14/5
 22. B 27
 23. D 4
 24. A 20

EXERCISE 7

Section A



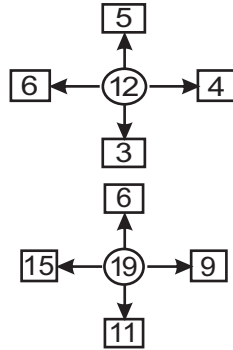
$$(5 \times 4) - 8 = 12$$

$$(3 \times 5) - 8 = 7$$

$$(11 \times 3) - 15 = 18$$

- $(7 \times 3) - X = 9$
 $21 - X = 9$
 $X = 21 - 9$
 $X = 12.$ B
- $(6 \times 5) - 19 = X$
 $30 - 19 = X$
 $x = 11.$ D
- $(15 \times X) - 35 = 25$
 $15X = 25 + 35$
 $15X = 60$
 $X = 4.$ A
- $(X \times 1\frac{1}{2}) - 19 = 5$
 $1\frac{1}{2} X = 5 + 19$
 $1\frac{1}{2} X = 24$
 $X = 24 / 1\frac{1}{2} = X \times \frac{2}{3}$
 $X = 16.$ E
- $(\frac{2}{5} \times 25) - X = \frac{1}{3}$
 $10 - X = \frac{1}{3}$
 $X = 10 - \frac{1}{3}$
 $X = 9 - \frac{2}{3}.$ B
- $(3 \times 9) - 11 = X$
 $27 - 11 = 16$
 $X = 16.$ B

Section B



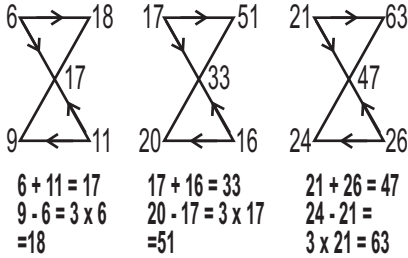
Interpretation:

$$(6 + 5 + 4) - 3 = 12$$

$$(15 + 6 + 9) - 11 = 19$$

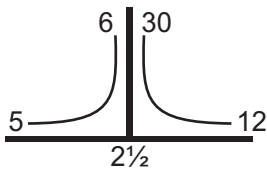
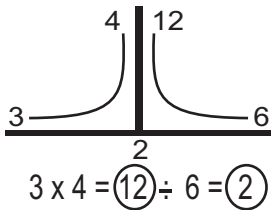
- $(7 + 5 + X) - 16 = 8$
 $12 + X - 16 = 8$
 $X = 8 + 16 - 12$
 $X = 12$
- $(X + 25 + 9) - 19 = 25$
 $X + 34 - 19 = 25$
 $X + 15 = 25$
 $X = 25 - 15$
 $X = 10.$ B
- $(1.5 + 9.2 + X) - 3 = 15$
 $(10.7 + X) - 3 = 15$
 $X + 7.7 = 15$
 $X = 15 - 7.7$
 $X = 7.3.$ D
- $(9 + 11 + 7) - 12.5 =$
 $14.5.$ E
- $(21 + 14 + 9) - X = 12$
 $44 - X = 12$
 $X = 44 - 12$
 $X = 32.$ C
- $(7 + 6 + 32) - 12 = 33$ A

Section C



13. $8 - 5 = 3 \times 5 = 15$. C
 14. $11 + 16 = 27$. B
 15. $33 - 19 = 14$. A
 16. $X - 24 = (X - 24)24$
 $X - 24 = 24X - 576$
 $23X = 552$
 $X = \frac{552}{23} = 24$. E
 17. $6 - \frac{1}{2} = 5\frac{1}{2}$ E
 18. $26 - 20 = 6 \times 20 = 120$ C

Section C

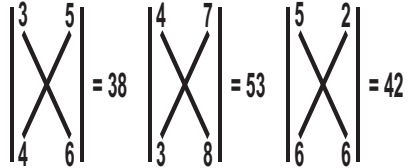


19. $16/4 = 4$. D
 20. $7 \times 9 = 63$. B
 21. $42 / 4.2 = 10$. C
 22. $45/5 = 9$. A
 23. $132 / 44 = 3$. E
 24. $45 / 9 = 9$. C

EXERCISE 8

Section A

Sample:



$$(3 \times 6) + (4 \times 5) = 38$$

$$(4 \times 8) + (3 \times 7) = 53$$

$$(5 \times 6) + (2 \times 6) = 42$$

1. $(4 \times 8) + (X \times 4) = 60$

$$32 + 4X = 60$$

$$4X = 60 - 32$$

$$X = 28 / 4$$

$$X = 7$$

C

2. $(6 \times 4) + (8 \times 3) = 48$. D

3. $(2/3 \times 9) + (18 \times X) = 15$

$$(6 + 18X) = 15$$

$$18X = 15 - 6$$

$$18X = 9$$

$$X = 9/18$$

$$X = \frac{1}{2}$$

4. $(X \times 5) + (2/5 \times 10) = 49$

$$5X + 4 = 49$$

$$5X = 49 - 4$$

$$X = 45/5$$

$$X = 9$$

A

5. $(\frac{1}{2} \times 1/5) + (1/3 + 2/5)$

$$1/10 + 2/5 = 7/30$$

B

6. $(3 \times X) + (5 \times 8) = 55$

$$3X + 40 = 55$$

$$3X = 55 - 40$$

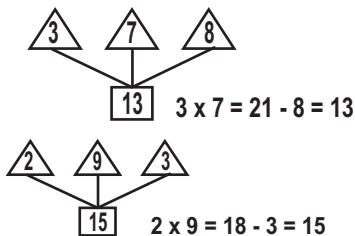
$$3X = 15$$

$$X = 15/3$$

$$X = 5$$

D

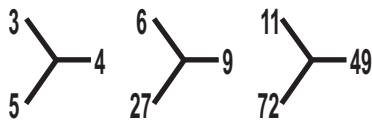
Sample:



7. $(5 \times 5) = 25 - X = 18$
 $X = 25 - 18$
 $X = 7.$ B
8. $(3 \times 9) = 27 - 10 = 17.$ E
9. $(12 \times X) = 12X - 9 = 63$
 $12X = 63 + 9$
 $12X = 72$
 $X = 72/12$
 $X = 6.$ D
10. $(X \times 9) = 9X - 45 = 27$
 $9X = 27 + 45$
 $9X = 72$
 $X = 72/9$
 $X = 8.$ D
11. $(2 \times 30) = 60 - 4 = 56.$ E
12. $(4 \times 9) = 36 - X = 32$
 $X = 36 - 32$
 $X = 4.$ E

Section C

Sample:



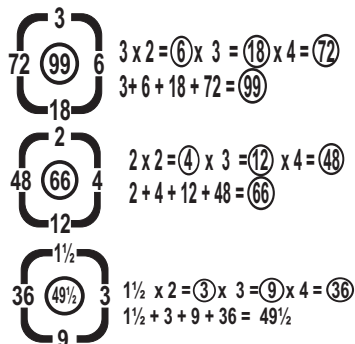
Interpretation:

- $(3 \times 3) - 4 = 5$
 $(6 \times 6) - 9 = 27$
 $(11 \times 11) - 49 = 72$
13. $(5 \times 5) - X = 13$
 $25 - X = 13$
 $X = 25 - 13$
 $X = 12.$ E
14. $(X + X) - 22 = 28$
 $X^2 = 27 + 22$
 $X^2 = 49$
 $X = \sqrt{49}$
 $X = 7$

15. $(12 \times 12) - 56 = 88.$ E
16. $(10 \times 10) - X = 68$
 $100 - X = 68$
 $X = 100 - 68$
 $X = 32.$ A
17. $(X \times X) - 35 = 190$
 $X^2 = 190 + 35$
 $X^2 = 225$
 $X = \sqrt{225}$
 $X = 15.$ D
18. $(9 \times 9) - 13 = 68.$ A

Section D

Sample:



19. $4 + 8 + 24 + 96 = 132.$ C
20. $7 + 14 + 42 + X = 231$
 $63 + X = 231$
 $X = 231 - 63$
 $X = 168.$ D
21. $13 + 26 + 78 + X = 429$
 $117 + X = 429$
 $X = 429 - 117$
 $X = 312$ A
22. $5 + 10 + X + 120 = 165$
 $X + 135 = 165$
 $X = 30$ E
23. $2/3 + 1 \frac{1}{3} + X + 16 = 22$
 $18 + X = 22$
 $X = 22 - 18$
 $X = 4.$ A
24. $9 + 18 + 54 + 216 = 297.$ E

EXERCISE 9

Section A

Sample:

(a) $2 * 5 \nabla 21 = 31$

Interpretation: $2 \times 5 = 10 + 21 = 31$

(a) $8 * 4 \triangle 11 = 21$

Interpretation: $8 \times 4 = 32 - 11 = 21$

1. $(7 \times X) - 15 = 20$

$7X = 20 + 15$

$7X = 35/7$

$X = 5.$

2. $(5 \times 4) + 32 = 52$

3. $(X \times 9) + 42 = 69$

$9X + 42 = 69$

$9X = 27$

$X = 27/9$

$x = 3$

4. $(8 \times 5) - 9 = 31$

5. $(9 \times 6) - X = 65$

$54 - X = 65$

$X = 65 - 54$

$X = 11.$

6. $(11 \times 9) - X = 48$

$99 - X = 48$

$X = 99 - 48$

$X = 51$

C
E

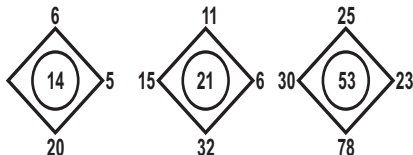
B
A

D

A

Section B

Sample:



Interpretation:

$20 - 6 = 14$

$9 + 5 = 14$

$32 - 11 = 21$

$15 + 6 = 21$

$78 - 25 = 53$

$30 + 23 = 53$

7. $12 - 6 = 6$ E

8. $41 + 31 = 72$ D

9. $14 + 11 = 25$ E

10. $94 - 56 = 38$ E

11. $36 - 14 = 22$ A

12. $70 - 21 = 49$ B

Section C

Sample:



Interpretation:

$3 + 2 = 5 \times 7 = 35$

$1 + 3 = 4 \times 9 = 36$

$7 + 4 = 11 \times 9 = 99$

13. $5 + 2 = 7 \times X = 28$

$X = 28 / 7$

$X = 4.$

D

14. $3 + 8 = 11 \times 9 = 99$ B

15. $1 + X = (1 + X) \times 13 = 130$

$1 + X = 130/13 = 10$

$X = 10 - 1$

$X = 9.$

A

16. $(X + 15) = (X + 15) \times 8 = 136$

$X + 15 = 136/8$

$X + 15 = 17$

$X = 17 - 15$

$X = 2.$

C

17. $(7 + 14) = (7 + 14) \times X = 126$

$21X = 126$

$X = 126/21$

$X = 6.$

E

18. $(11 + X) = (11 + X) \times 4 = 140$

$11 + X = 140/4$

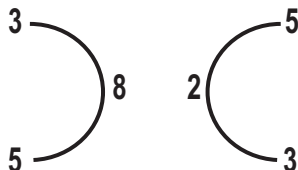
$11 + X = 35$

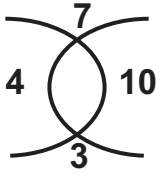
$X = 35 - 11$

$X = 24.$

C

Section D





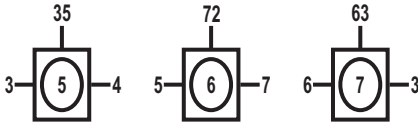
Interpretation:

$$\begin{array}{l|l} 3 + 5 = 8 & 7 + 3 = 10 \\ 5 - 3 = 2 & 7 - 3 = 4 \end{array}$$

19. $7 + 9 = 16$. C
 20. $11 - 5 = 6$. D
 21. $21 + 9 = 30$. A
 22. $32 - 9 = 23$. A
 23. $23 - 7 = 16$. C
 24. $58 - 17 = 41$. B

EXERCISE 10

Section A



Interpretation:

$$\begin{array}{l} 3 + 4 = 7 \times 5 = 35 \\ 5 + 7 = 12 \times 6 = 72 \\ 6 + 3 = 9 \times 7 = 63 \end{array}$$

1. $4 + 5 = 9 \times 3 = 27$. D
 2. $(3 + X) \times 7 = 84$
 $3 + X = 84/7$
 $3 + X = 12$
 $X = 12 - 3$
 $X = 9$. B
 3. $(X : 5) \times 21 = 294$
 $X + 5 = 294/21$
 $X + 5 = 14$
 $X = 14 - 5$
 $X = 9$. A
 4. $(7 + 12) \times X = 171$
 $19X = 171$
 $X = 171/19$
 $X = 9$. B
 5. $(8 + 7) \times 12 = 180$. D
 6. $(8 + X) \times 12 = 276$
 $(8 + X) = 276/12$
 $8 + X = 23$
 $X = 15$. A

Section B

Sample:

25	9
3	5

64	100
10	8

Interpretation:

$$\sqrt{25} = 5$$

$$\sqrt{100} = 10$$

$$\sqrt{9} = 3$$

$$\sqrt{64} = 8$$

7. $\sqrt{49} = 7$. B
 8. $\sqrt{121} = 11$. D
 9. $12 \times 12 = 144$ D
 10. $11 \times 11 = 121$ E
 11. $25 \times 25 = 625$ A
 12. $9 \times 9 = 81$ E

Section C

Sample:



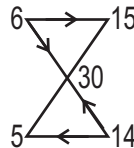
$$\begin{array}{l} 3 \times 4 = 12 \\ 7 + 5 = 12 \end{array}$$



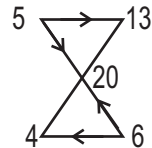
$$\begin{array}{l} 6 \times 5 = 30 \\ 18 + 12 = 30 \end{array}$$

13. $5 \times 3 = 15$
 $15 - 6 = 9$. A
 14. $10 + 14 = 24$
 $24 \div 8 = 3$. D
 15. $4 \times 9 = 36$; $36 - 23 = 13$. E
 16. $60 + 40 = 100$
 $100 \div 4 = 25$. B
 17. $9 \times 7 = 63$
 $63 - 40 = 23$. C
 18. $11 + 24 = 35$
 $35 \div 7 = 5$. A

Section D



Interpretation
 $6 \times 5 = 30$
 $15 + 14 + 1 = 30$



$$\begin{array}{l} 5 \times 4 = 20 \\ 13 + 6 + 1 = 20 \end{array}$$

19. $31 + X + 1 = 42$

$X + 32 = 42$

$X = 42 - 32$

$X = 10.$ C

20. $5 \times X = 40$

$5X = 40$

$X = \frac{40}{5} X = 8.$ A

21. $X \times 8 = 120$

$8X = 120$

$X = \frac{120}{8} = 15$ E

22. $80 + 66 + 1 = 147$ C

23. $78 + 11 + 1 = 90$ C

24. $25 + X + 1 = 48$

$26 + X = 48$

$X = 48 - 26$

$X = 22$ B

EXERCISE 11

Section A



$1 + 2 + 3 = 6$
 $6 \times 3 = 18$



$1 + 5 + 6 = 12$
 $6 \times 12 = 72$

1. $1 + 8 + 7 = 16$

2. $28 - (14 - 1) = 13.$ B

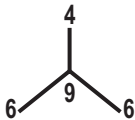
3. $10 - (4 + 1) = 5.$ C

4. $4 \times 2 = 8$ A

5. $15 \times 30 = 450.$ E

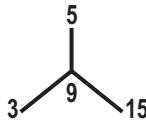
6. $5 \times 38 = 190.$ A

Section B



$6 \times 6 = 36 \div 9 = 4$

$3 \times 15 = 45 \div 5 = 9$



7. $12 \times 8 = 96 \div 6 = 16.$ E

8. $(X \times 12) \div 9 = 8$

$12X = 8 \times 9$

$X = 72/12$

$X = 6.$ B

9. $(18 \times 16) \div 24 = 12.$ A

10. $(15 \times X) \div 10 = 6$

$15X = 6 \times 10$

$X = \frac{60}{15}$

$X = 4.$ D

11. $(3 \times 4) \div X = 6$

$12/X = 6$

$6X = 12$

$X = 12/6$

$X = 2.$ B

12. $(20 \times 10) \div X = 40$

$200 \div X = 40$

$40X = 200$

$X = \frac{200}{40} = 5.$ B

Section C

Sample:



The sum of 3 angles - 180

13. $75 + 60 + X = 180$

$135 + X = 180$

$X = 180 - 135$

$X = 45.$ B

14. $X + 30 + 70 = 180$

$X + 100 = 180$

$X = 80.$ E

15. $60 + 55 + X = 150$

$115 + X = 150$

$X = 150 - 115$

$X = 35.$ C

16. $30 + 15 + X = 180$

$45 + X = 180$

$X = 180 - 45$

$X = 135.$ E

17. $30 + 65 + X = 180$

$X = 180 - 95$

$X = 180 - 100 = 80$

$X = 85.$ E

Section D

$$\frac{27 (+) 2}{9 (-) 3} = \frac{54}{3} = 18$$

$$\frac{16 (+) 3}{24 (-) 6} = \frac{48}{4} = 12$$

$$18. \frac{X \times 9 = 9X}{9 \div 3 = 3} = 21$$

$$9X = 21 \times 3$$

$$X = 63/9$$

$$X = 7. \quad \text{B}$$

$$19. \frac{11 \times X}{44 \div 2} = \frac{11X}{22} = 6$$

$$11X = 6 \times 22$$

$$11X = 132/11$$

$$X = 12. \quad \text{D}$$

$$20. \frac{9 \times 12}{54 \div X} = \frac{108}{54/X} = 2$$

$$108X = 54 \times 2$$

$$X = 108 / 108$$

$$X = 1. \quad \text{A}$$

$$21. \frac{25 \cdot 2/3 \times 2 \cdot 1/3}{33 \div 3}$$

$$\frac{77/3 \times 7/3}{11}$$

$$= 77/3 \times 7/3 \div 11/1$$

$$= 49/9$$

$$= 5 \cdot 4/9. \quad \text{C}$$

$$22. \frac{15 \times 15}{50 \div 2} = \frac{225}{25} = 9. \quad \text{D}$$

$$23. \frac{15 \times 10}{X \div 5} = \frac{150}{X/5} = 10$$

$$150 = \frac{10X}{5}$$

$$X = \frac{150 \times 5}{10} = 75. \quad \text{D}$$

$$24. \frac{112 \times 5}{40 \div 4} = \frac{560}{10} = 56 \quad \text{A}$$

$$25. \frac{113 \times X}{24 \div 3} = 13$$

$$\frac{13X}{8} = 13$$

$$13X = 13 \times 8$$

$$X = \frac{104}{13}$$

$$X = 8. \quad \text{D}$$

EXERCISE 12

Section A

Sample:

$$\begin{array}{ccc} \begin{array}{c} 3 \\ 19 \quad 14 \\ \hline 16 \quad 17 \end{array} & \begin{array}{c} 5 \\ 13 \quad 9 \\ \hline 8 \quad 14 \end{array} & \begin{array}{c} 10 \\ 21 \quad 0 \\ \hline 11 \quad 10 \end{array} \end{array}$$

$$3 + 16 = 19$$

$$3 + 14 = 17$$

$$5 + 8 = 19$$

$$5 + 9 = 14$$

$$10 + 11 = 21$$

$$10 + 0 = 10$$

$$1. \quad 11 + 0 = 11. \quad \text{D}$$

$$2. \quad 30 - 12 = 18. \quad \text{B}$$

$$3. \quad 12 - 5 = 7. \quad \text{B}$$

$$4. \quad 7 + 2 = 9. \quad \text{C}$$

$$5. \quad 15 - 9 = 6. \quad \text{C}$$

$$6. \quad 34 - 15 = 19. \quad \text{A}$$

Section B

Sample:

$$(Q * R) 15 \implies (15 - 3) \times 3 = 36$$

$$(R * Q) 8 \implies (8 \times 3) - 3 = 21$$

$$(Q * R) 9 \implies (9 - 3) \times 3 = 18$$

$$7. \quad (4 - 3) \times 3 = 3. \quad \text{C}$$

$$8. \quad (36 \times 3) - 3 = 105 \quad \text{A}$$

$$9. \quad (13 - 3) \times 3 = 30 \quad \text{B}$$

$$10. \quad (10 - 3) \times 3 = 21 \quad \text{C}$$

$$11. \quad (17 \times 3) - 3 = 48 \quad \text{D}$$

$$12. \quad (5 \times 3) - 3 = 12. \quad \text{A}$$

Section C

$$13. \quad (3 \times 2 \times 1) + (5 \times 4 \times 3 \times 2 \times 1)$$

$$6 + 120 = 126. \quad \text{A}$$

$$14. \quad \frac{(6 \times 5 \times 4 \times 3 \times 2 \times 1)}{(4 \times 3 \times 2 \times 1)} = \frac{(5 \times 4 \times 3 \times 2 \times 1)}{(4 \times 3 \times 2 \times 1)}$$

$$= (6 \times 5) - 5$$

$$= 30 - 5 = 25. \quad \text{C}$$

$$15. \quad \frac{(3 \times 2 \times 1) + (2 \times 1)}{(2 \times 1)} = \frac{6 + 2}{2} = \frac{8}{2} = 4. \quad \text{D}$$

$$16. \quad (4 \times 3 \times 2 \times 1) + (3 \times 2 \times 1) \times (2 \times 1)$$

$$= (24 + 6) \times 2$$

$$= 30 \times 2$$

$$= 60. \quad \text{B}$$

$$17. \frac{(5 \times 4 \times 3 \times 2 \times 1)}{(3 \times 2 \times 1)} + \frac{(6 \times 5 \times 4 \times 3 \times 2 \times 1)}{(4 \times 3 \times 2 \times 1)}$$

$$= \frac{120}{6} + \frac{720}{24}$$

$$= 20 + 30$$

$$= 50. \quad D$$

Section C

18. 7. D 21. C
 19. 6. D 22. E
 20. E

EXERCISE 13

Section A

$$(6 \times 3) - (4 \times 3) = 6$$

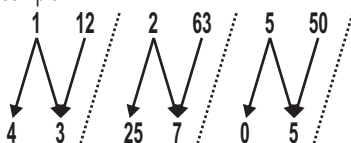
$$(7 \times 4) - (9 \times 2) = 10$$

$$(7 \times 3) - (0 \times 7) = 21$$

- $(7 \times 4) - (4 \times 6) = 4 \quad B$
- $(9 \times 0) - (5 \times X) = 0$
 $0 - 5X = 0$
 $-5X = 0$
 $X = 0. \quad E$
- $(18 \times 4) - (12 \times X) = 12$
 $72 - 12X = 12$
 $-12X = 12 - 72$
 $-12X = -60$
 $X = 5. \quad C$
- $(1/4 \times 8) - (1 \times 1) = X$
 $2 - 1 = X$
 $X = 1 \quad D$
- $(2 \times 1.4) - (1.4 \times 0.2)$
 $= 2.52. \quad C$

Section B

Sample:



$$3 - 1 = 2 \times 2 = 4 \quad 7 - 2 = 5 \times 5 = 25 \quad 5 - 0 = 0 \times 0 = 0$$

$$1 + 3 = 4 \times 3 = 12 \quad 2 + 7 = 9 \times 7 = 63 \quad 5 + 5 = 10 \times 5 = 50$$

$$3 - (\sqrt{4}) = 1 \quad 7 - (\sqrt{25}) = 2 \quad 5 - (\sqrt{0}) = 5$$

$$3 - 1 = 2^2 = 4 \quad 7 - 2 = 5^2 = 25 \quad 5 - 0 = 0^2 = 0$$

6. 5. D
 7. 25. D
 8. 0. A
 9. 75. D
 10. 320. E

Section C

$$4 \times 3 = 12 \quad 2 \times 5 = 10 \quad 7 \times 2 = 14$$

$$4^2 + 3 = 19 \quad 5^2 + 2 = 27 \quad 2^2 + 7 = 11$$

- $21 \div 3 = 7. \quad A$
- $9^2 + 5 = 86. \quad E$
- $8 \times 10 = 80. \quad C$
- $0 \div 12 = 0. \quad A$
- $4 \div 4 = 1. \quad D$

Section D

$$2 \Rightarrow 4 \Rightarrow 12 \Rightarrow 48 \Rightarrow 240$$

$$1 \Rightarrow 2 \Rightarrow 6 \Rightarrow 24 \Rightarrow 120$$

Interpretation:

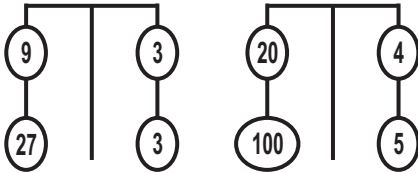
$$2 \times 2 = 4, \quad 4 \times 3 = 12, \quad 12 \times 4 = 48, \quad 48 \times 5 = 240$$

$$1 \times 2 = 2, \quad 2 \times 3 = 6, \quad 6 \times 4 = 24, \quad 24 \times 5 = 120$$

16. $6 \times 3 = 18$. C
 17. $8 \times 3 = 24$. C
 18. $1/6 \times 2 = 1/3$. B
 19. $30 \times 4 = 120$. B
 20. $200 \times 3 = 600$. D

EXERCISE 14

Section A



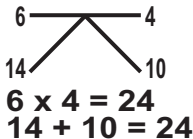
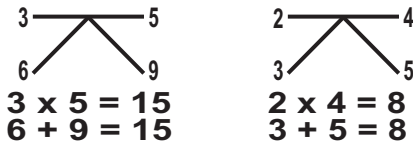
Interpretation:

$$27 \div 3 = 9 \div 3 = 3$$

$$100 \div 5 = 20 \div 4 = 5$$

1. $14 \times 7 = 98$. A
 2. $10 \div 5 = 2$. E
 3. $1000 \div 10 = 100$ C
 4. $100 \div 2 = 50$ C
 5. $50 \div 10 = 5$ D
 6. $400 \times 5 = 2000$ C

Section B



7. $21 - 12 = 9$. C
 8. $22 + 8 = 30 \div 5 = 6$. C
 9. $33 + 9 = 42 \div 7 = 6$. A
 10. $8 \times 12 = 96 - 56 = 40$ A
 11. $58 + 22 = 86 \div 120 = 2/3$ C
 12. $13 \times 4 = 52 - 32 = 20$ B

Section C



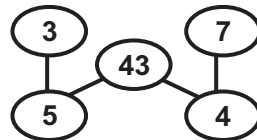
Interpretation:

$$2 + 5 = 7 \times 3 = 21$$

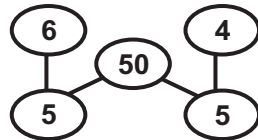
$$3 + 6 = 9 \times 4 = 36$$

13. $4 + 2 = 6 \times X = 30$
 $X = 30/6$
 $X = 5$. C
 14. $(X + 5) \times 6 = 72$
 $X + 5 = 72/6 = 12$
 $X = 12 - 5$
 $X = 7$. D
 15. $6 + 5 = 11 \times 9 = 99$. E
 16. $(9 + X) \times 5 = 85$
 $9 + X = 85/5 = 17$
 $X = 17 - 9$
 $X = 8$. B
 17. $(20 + 4) \times X = 192$
 $24X = 192$
 $X = 192/24$
 $X = 8$. D
 18. $(2/3 + 1/2) \times 90 = 105$. E

Section D



$$\begin{array}{r} 3 \times 5 = 15 \\ 7 \times 4 = 28 \\ \hline 43 \end{array} +$$

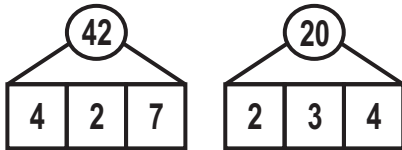


$$\begin{array}{r} 6 \times 5 = 30 \\ 4 \times 5 = 20 \\ \hline 50 \end{array} +$$

19. $7 \times 3 = 21$
 $5 \times 9 = 45$
 $21 + 45 = 66.$ D
20. $(4 \times 5) + (8 \times X) = 44$
 $20 + 8X = 44$
 $8X = 44 - 20$
 $8X = 24$
 $X = 3$ E
21. $(6 \times X) + (5 \times 12) = 108$
 $6X + 60 = 108$
 $6X = 108 - 60$
 $X = 48/6$
 $X = 8.$ A
22. $(X \times 9) + (8 \times 8) = 109$
 $9X + 64 = 109$
 $9X = 109 - 64 = 45$
 $X = 45/9$
 $X = 5.$ C
23. $(9 \times 20) + (7 \times 11) = 257$ E

EXERCISE 15

Section A

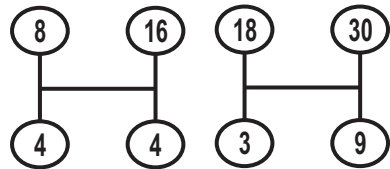


Interpretation: $4 + 2 = 6 \times 7 = 42$
 $2 + 3 = 5 \times 4 = 20$

1. $(3 + 5) = 8 \times X = 48$
 $8X = 42$
 $X = 42/8$
 $X = 6.$ E
2. $(2 + X) \times 5 = 60$
 $2 + X = 60/5$
 $2 + X = 12$
 $X = 12 - 2$
 $X = 10.$ B
3. $(7 + 2) \times 12 = 108.$ D

4. $(11 + X) \times 40 = 600$
 $11 + X = 600/40 = 15$
 $X = 15 - 11$
 $X = 4.$ A
5. $\frac{1}{2} + \frac{3}{4} = \frac{5}{4} \times 60 = 75.$ A
6. $(X + 4) \times 5 = 65$
 $X + 4 = 65 \div 5 = 13$
 $X = 13 - 4 = 9.$ C

Section B



Interpretation:

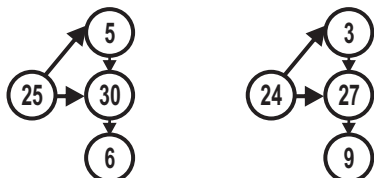
$$8 + 4 = 12 \quad 18 + 3 = 21$$

$$16 - 4 = 12 \quad 30 - 9 = 21$$

7. $12 + 7 = 19$
 $X - 12 = 19$
 $X = 19 + 12$
 $X = 31.$ C
8. $159 - 55 = 104$
 $84 + X = 104$
 $X = 104 - 84$
 $X = 20.$ B
9. $38 + 206 = 244$
 $X - 102 = 244$
 $X = 244 + 102 = 346.$ E
10. $16 + 94 = 110$
 $178 - X = 110$
 $X = 178 - 110$
 $X = 68.$ B
11. $99 - 17 = 82$
 $X + 67 = 82$
 $X = 82 - 67$
 $X = 15.$ B

$$\begin{aligned}
 12. \quad & 296 - 130 = 166 \\
 & 141 + X = 166 \\
 & X = 166 - 141 \\
 & X = 25. \quad \text{A}
 \end{aligned}$$

Section C



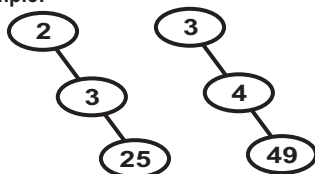
$$\begin{aligned}
 5 \times 6 &= 30 \\
 30 - 5 &= 25
 \end{aligned}$$

$$\begin{aligned}
 3 \times 9 &= 27 \\
 27 - 3 &= 24
 \end{aligned}$$

13. $84 - 7 = 77.$ C
14. $75 \div 5 = 15.$ C
15. $165 \div 15 = 11$ D
16. $7 \times 9 = 63.$ B
17. $225 - 9 = 216.$ E
18. $120 - \frac{3}{4} = 119.25$ E

Section D

Sample:



$$2 + 3 = 5^2 = 25$$

$$3 + 4 = 7^2 = 49$$

19. $\sqrt{36} = 6$
 $6 - 4 = 2.$ B
20. $\sqrt{144} = 12$
 $12 - 10 = 2.$ B
21. $6 + 10 = 16^2 = 256.$ D
22. $\sqrt{169} = 13$
 $13 - 7 = 6.$ E

EXERCISE 16

Section A

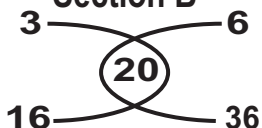


Interpretation:

$$\begin{aligned}
 (34 + 26) \div 10 &= 6 \\
 (10 \times 6) - 26 &= 34
 \end{aligned}$$

1. $(3 \times 5) - X = 7$
 $15 - X = 7$
 $X = 15 - 7$
 $X = 8.$ B
2. $(58 + 32) \div 9 = 10.$ A
3. $(3 \times 6) - 8 = 10.$ D
4. $(12 + 12) \div X = 4$
 $24/X = 4,$
 $X = 24/4$
 $X = 6.$ B
5. $(2 \times 14) - X = 7$
 $X = 28 - 7$
 $X = 21.$ E
6. $(12/5 + 4/5) \div 1 = 11/5$ E

Section B



Interpretation:

$$\begin{aligned}
 (3 \times 6) + 2 &= 20 \\
 6^2 &= 36 \\
 36 - 20 &= 16
 \end{aligned}$$

7. 5. C
8. 9. A
9. 169. E
10. 5. C
11. 23. B
12. 20.5. D

Section C



$$7 + 8 = 15 \times 2 = 30$$

$$18 + 12 = 30$$



$$5 + 3 = 8 \times 2 = 16$$

$$6 + 10 = 16$$



$$2 + 3 = 5 \times 2 = 10$$

$$7 + 3 = 10$$

13. $18 + 6 = 24$
 $(7 + X) \times 2 = 24$
 $7 + X = 24/2 = 12$
 $X = 12 - 7$
 $X = 5.$

14. $9 + 6 = 15 \times 2 = 30$
 $14 + X = 30$
 $X = 30 - 14$
 $X = 16.$ **B**

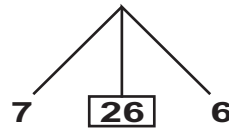
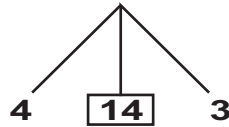
15. $9 + 11 = 20$
 $(3 + X) \times 2 = 20$
 $3 + X = 20/2 = 10$
 $X = 10 - 3$
 $X = 7.$ **C**

16. $5 + 14 = 19 \times 2 = 38$
 $X + 20 = 38$
 $X = 38 - 20$
 $X = 18$

17. $2 + 3 = 5 \times 2 = 10$
 $4 + X = 10$
 $X = 10 - 4$
 $X = 6.$ **B**

18. $4 + 2 = 6$
 $(X + 2\frac{1}{2}) \times 2 = 6$
 $X + 2\frac{1}{2} = 6/2 = 3$
 $X = 3 - 2\frac{1}{2}$
 $X = \frac{1}{2}.$ **E**

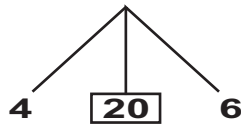
Section D



Interpretation:

$$4 + 3 = 7 \times 2 = 14$$

$$7 + 6 = 13 \times 2 = 26$$



$$4 + 6 = 10 \times 2 = 20$$

19. $6 + 2 = 8 \times 2 = 16$ **E**

20. $(5\frac{1}{2} + X) \times 2 = 12$
 $5\frac{1}{2} + X = 12/2 = 6$
 $X = 6 - 5\frac{1}{2}$
 $X = \frac{1}{2}.$ **A**

21. $(5 + X) \times 2 = 14$
 $5 + X = 14/2 = 7$
 $X = 7 - 5$
 $X = 2.$ **D**

22. $(X + 7) \times 2 = 42$
 $X + 7 = 42/2 = 21$
 $X = 21 - 7$
 $X = 14.$

23. $(10 + \frac{1}{2}) \times 2 = 21.$ **E**

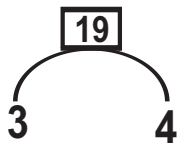
$$\begin{aligned}
 24. \quad & (9 + X) \times 2 = 38 \\
 & 9 + X = 38/2 = 19 \\
 & X = 19 - 9 \\
 & X = 10.
 \end{aligned}$$

C

EXERCISE 17

Section A

Sample:



Interpretation:

$$(3 \times 4) + (3 + 4) = 19$$

$$1. \quad (X + 7) + (X \times 7) = 55$$

$$X + 7 + 7X = 55$$

$$8X = 55 - 7$$

$$X = 48/8$$

$$X = 6.$$

C

$$2. \quad (8 + 6) + (8 \times 6) = 62.$$

$$3. \quad (21 + X) + (21 \times X) = 21$$

$$21 + X + 21X = 21$$

$$22X = 21 - 21$$

$$X = 0/22$$

$$X = 0.$$

D

$$4. \quad (X + 6) + (X \times 6) = 48$$

$$X + 6 + 6X = 48$$

$$7X = 48 - 6$$

$$7X = 42$$

$$X = 42/7$$

$$X = 6.$$

C

$$5. \quad (7 + X) + (7 \times X) = 103$$

$$7 + X + 7X = 103$$

$$8X = 103 - 7$$

$$X = 96/8$$

$$X = 12.$$

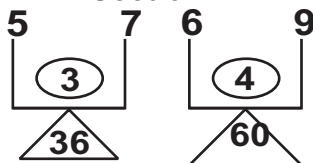
E

$$6. \quad (2/3 + 1/3) + (2/3 \times 1/3)$$

$$1 + 2/9 = 1 \frac{2}{9}.$$

D

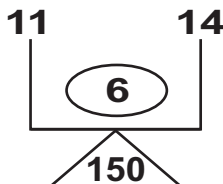
Section B



Interpretation:

$$5 + 7 = 12 \times 3 = 36$$

$$6 + 9 = 15 \times 4 = 60$$



$$11 \times 14 = 25 \times 6 = 150$$

$$7. \quad (3 + X) \times 7 = 210$$

$$3 + X = 210/7 = 30$$

$$X = 30 - 3$$

$$X = 27.$$

A

$$8. \quad 4 + 7 = 11 \times 5 = 55.$$

B

$$9. \quad 8 + 13 = 21 \times X = 126$$

$$X = 126/21$$

$$X = 6.$$

D

$$10. \quad (X + 15) \times 3 = 72$$

$$X + 15 = 72/3 = 24$$

$$X = 24 - 15$$

$$X = 9.$$

A

$$11. \quad (11 + 16) \times 15 = 405$$

A

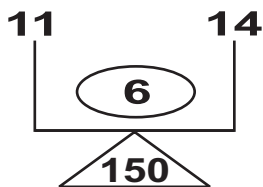
$$12. \quad (14 + X) \times 9 = 333$$

$$14 + X = 333/9 = 37$$

$$X = 37 - 14$$

$$X = 23$$

C

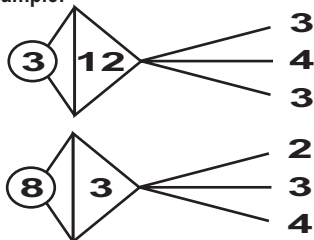


$$11 \times 14 = 25 \times 6 = 150$$

7. $(3 + X) \times 7 = 210$
 $3 + X = 210/7 = 30$
 $X = 30 - 3$
 $X = 27.$ A
8. $4 + 7 = 11 \times 5 = 55.$ B
9. $8 + 13 = 21 \times X = 126$
 $X = 126/21$
 $X = 6.$ D
10. $(X + 15) \times 3 = 72$
 $X + 15 = 72/3 = 24$
 $X = 24 - 15$
 $X = 9.$ A
11. $(11 + 16) \times 15 = 405$ A
12. $(14 + X) \times 9 = 333$
 $14 + X = 333/9 = 37$
 $X = 37 - 14$
 $X = 23$ C

Section C

Sample:



Interpretation:

$$3 \times 12 = 3 \times 4 \times 3$$

$$36 = 36$$

$$8 \times 3 = 2 \times 3 \times 4$$

$$24 = 24$$

13. $\frac{1}{2}$ C
 14. 12 B
 15. 4. A
 16. $\frac{2}{3}$. D
 17. 3 C
 18. 12 E

Section D

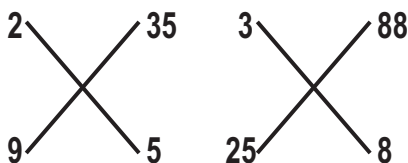
19. E. None of the nos.
 20. E. Z
 21. C. W
 22. E. Z
 23. E. None of the Shape
 24. C T

EXERCISE 18

Section A

1. June C
 2. 30kg C
 3. August E
 4. N300 C
 5. July D
 6. 90kg D

Section B



Interpretation:

$$5 - 2 = 3 \times 3 = 9$$

$$2 + 5 = 7 \times 5 = 35$$

$$8 - 3 = 5 \times 5 = 25$$

$$3 + 8 = 11 \times 8 = 88$$

7. $7 - 2 = 5 \times 5 = 25$. D

8. $(X + 16) \times 16 = 320$

$X + 16 = 320/16$

$X + 16 = 20$

$X = 20 - 16$

$X = 4$. B

9. $(X - 3/2) (X - 3/2) = 81$

$(X - 3/2)^2 = \sqrt{81}$

$X - 3/2 = 81 = 9$

$X = 9 + 3/2$

$X = \frac{18 + 3}{2}$

$X = 21/2 = 10\frac{1}{2}$. A

10. $3 + 5 = 8 \times 5 = 40$. B

11. $(X + 7\frac{1}{2}) \times 7\frac{1}{2} = 75$

$X + 7\frac{1}{2} = 75/7\frac{1}{2}$

$X = 10 - 7\frac{1}{2}$

$X = 2\frac{1}{2}$. C

12. $(X - 5) (X - 5) = 16$

$(X - 5)^2 = \sqrt{16}$

$X - 5 = 16 = 4$

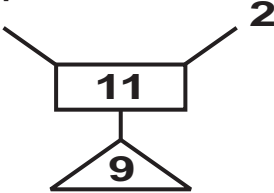
$X = 4 + 5$

$X = 9$. B

Section C

Sample:

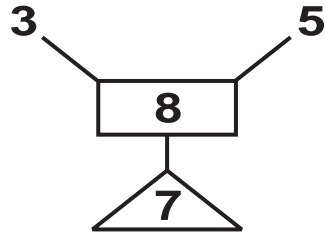
10



Interpretation:

$10 \times 2 = 20$

$20 - 9 = 11$



$3 \times 5 = 15$

$15 - 7 = 8$

13. $2 \times 4 = 8 - 2 = 6$. C

14. $8 \times X = 8X - 24 = 8$

$8X = 8 + 24$

$X = 32/8$

$X = 4$. A

15. $X \times 4 = 4X - 16 = 44$

$4X = 44 + 16$

$X = 60/4$

$X = 15$. B

16. $12 \times 7 = 84 - 36 = 48$ D

17. $9 \times X = 9X - 11 = 124$

$9X = 124 + 11$

$9X = 135$

$X = 135/9$

$X = 15$. D

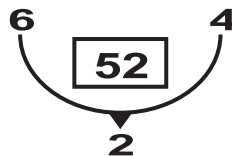
18. $3 \times 25 = 75 - X = 51$

$X = 75 - 51$

$X = 24$

Section D

Sample:

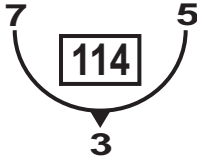


Interpretation:

$$6 \times 4 = 24$$

$$24 + 2 = 26$$

$$26 \times 2 = 52$$



$$7 \times 5 = 35$$

$$35 + 3 = 38$$

$$38 \times 3 = 114$$

19. $3 \times 8 = 24$

$$(24 + X) \times X = 25$$

$$24X + X^2 = 25$$

$$X^2 + 24X - 25 = 0$$

$$(X^2 + 25X) - (X + 25) = 0$$

$$X(X + 25) - 1(X + 25) = 0$$

$$(X + 25) = 0$$

$$X = -25$$

$$X - 1 = 0$$

$$X = 1.$$

C

20. $2 \times 9 = 18 + 3 = 21 \times 3$

$$= 63.$$

C

21. $(X \times 7) = (7X + 5) \times 5 = 200$

$$7X + 5 = \frac{200}{5} = 40$$

5

$$7X + 5 = 40$$

$$7X = 40 - 5 = 35$$

$$X = 35/7$$

$$X = 5.$$

B

22. $7 \times 5 = 35 + 4$

$$= 39 \times 4$$

$$= 156$$

B

23. $(7x + 3) \times 3 = 93$

$$7X + 3 = \frac{93}{3} = 31$$

3

$$7X + 3 = 31$$

$$7X = 31 - 3$$

$$X = 28/7$$

$$X = 4.$$

A

24. $9 \times 4 = 36$

$$36 + 2 = 38$$

$$38 \times 2 = 76.$$

C