

## DIRECTED NUMBERS

Form 1 Regular Course  
Vol 1A

### Part 4 - Number Line Problem

- |       |       |       |      |       |
|-------|-------|-------|------|-------|
| 1. C  | 2. A  | 3. C  | 4. A | 5. A  |
| 6. A  | 7. B  | 8. B  | 9. B | 10. B |
| 11. B | 12. A | 13. D |      |       |

1. C

Since  $-3 > -4$ .

2. A

3. C

4. A

$$(+4) - (-3) = 7$$

5. A

$$a + b < 0 \text{ and } c > 0, \therefore a + b < c$$

6. A

$$a < 0 \text{ and } b > 0, \therefore b - a > 0$$

7. B

8. B

$$ac < 0 \text{ and } bc > 0, \therefore ac < bc$$

9. B

$$a + b < 0 \text{ and } b + c > 0, \therefore a + b < b + c$$

10. B

11. B

$$a < 0, b > 0 \text{ and } c > 0, \therefore abc < 0$$

12. A

$$a < -1, \text{ and } b > 0, \therefore b - a > 1$$

13. D

$$A = -1, B = 1 \text{ and } C = 2$$

$$(-A + B) \times C$$

$$= [ -(-1) + 1 ] \times 2$$

$$= 4$$

### Part 5 - Application Problem

1. C                      2. D                      3. B                      4. B                      5. D  
6. A                      7. C                      8. C

1. C

$$\text{Overall change} = +320 - 400 + 100 = +20$$

2. D

$$86 - (82 - 2) = 6$$

3. B

$$\text{Overall change} = -3 - 4 - 5 + 6 = -6^\circ \text{C}$$

4. B

By comparing the magnitudes, +15 is the smallest.

5. D

$$\text{Total points} = -3 \times 3 + 5 \times 4 + 1 \times 3 = 14$$

6. A

Marks carried by each question

$$= \frac{100}{10} = 10 \text{ marks}$$

The total mark of the student

$$= 6 \times 10 + 3 \times (-15) + 1 \times (-5)$$

$$= 10 \text{ marks}$$

7. C

The temperature at 5:00 pm

$$= 24 + 1.2 - 0.3 - 0.7 = 24.2^\circ \text{C}$$

8. C

Temperature change from 5:00 pm to 7:00 pm

$$= 22.6 - 24.2 = -1.6^\circ \text{C}$$

Temperature change from 5:00 pm to 6:00 pm

$$= -1.6 \div 2 = -0.8^\circ \text{C}$$

$$\text{The temperature at 6:00 pm} = 24.2 - 0.8 = 23.4^\circ \text{C}$$

# INTRODUCTION TO ALGEBRA

Form 1 Regular Course  
Vol 1B

## Part 1 – Algebra Expression

1. A

$$\frac{x}{3-(-2)} = \frac{x}{5}$$

2. D

3. B

$$\frac{m}{2n - \frac{n}{2}} = \frac{m}{\frac{3n}{2}} = \frac{2m}{3n}$$

4. B

5. B

6. C

$$\left(\frac{a}{2} + \frac{1}{3}a\right) \div \left[\frac{2}{3}\left(\frac{1}{2}\right)\right] = \left(\frac{5}{6}a\right)\left(\frac{3}{1}\right) = \frac{5}{2}a$$

## Part 2 – Addition and Subtraction

1. A

$$\begin{aligned} & -(-6ab) + (-2ab) - (4ab) - (-ba) \\ & = 6ab - 2ab - 4ab + ab \\ & = ab \end{aligned}$$

2. C

$$\begin{aligned} & (a - 4b + 7c) - (-5c - 2b) \\ & = a - 4b + 7c + 5c + 2b \\ & = a - 2b + 12c \end{aligned}$$

3. D

$$\begin{aligned} & (10xy - x^2y) + (-5xy^2 - 3xy) \\ &= 10xy - x^2y - 5xy^2 - 3xy \\ &= 7xy - x^2y - 5xy^2 \end{aligned}$$

4. C

$$\begin{aligned} & -(x^2 + 2xy) - (x^2 + 2xy - 3) \\ &= -x^2 - 2xy - x^2 - 2xy + 3 \\ &= -2x^2 - 4xy + 3 \end{aligned}$$

5. B

$$\begin{aligned} & (4x^2 + 2x - 5) + (2x^2 - 3x - 1) \\ &= 4x^2 + 2x - 5 + 2x^2 - 3x - 1 \\ &= 6x^2 - x - 6 \end{aligned}$$

6. C

$$\begin{aligned} & (9x^2 - 2) + (3x - 2x^2) + (7x + 5) \\ &= 9x^2 - 2 + 3x - 2x^2 + 7x + 5 \\ &= 7x^2 + 10x + 3 \end{aligned}$$

7. D

$$\begin{aligned} & (14a - 23) - [(16a + 5) + (2a - 14)] \\ &= 14a - 23 - (16a + 5 + 2a - 14) \\ &= 14a - 23 - (18a - 9) \\ &= 14a - 23 - 18a + 9 \\ &= -4a - 14 \end{aligned}$$

8. D

$$\begin{aligned} & (3x^2 - 5x - 1) - (2x^2 + 6x - 7) - (4x^2 - x - 6) \\ &= 3x^2 - 5x - 1 - 2x^2 - 6x + 7 - 4x^2 + x + 6 \\ &= -3x^2 - 10x + 12 \end{aligned}$$