

Fully-worked Solutions

Practice 1

Formative Practice

- 1 A Wrong
B Wrong
C Correct
D Wrong
Answer: C

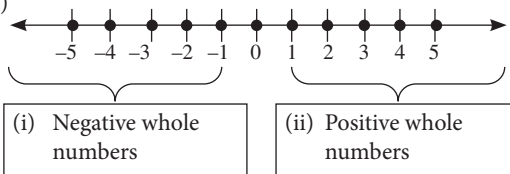
2 (a) $+2.8, 4.35, \frac{7}{12}, 9$

(b) $-6, -12, -0.07, -\frac{5}{8}$

3 (a) -3 (b) 2.40 (c) 1.1 (d) -150

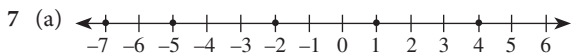
4 $3, -7, -1, 12, -19, +8, 0$

5 (a)



(b) Integers are positive whole numbers, negative whole numbers and zero.

6 (a) 0 m (b) -850 m (c) 200 m



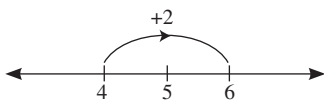
(b) -2 is greater than -7 or -7 is less than -2 .

(c) $-7, -5, -2, 1, 4$

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

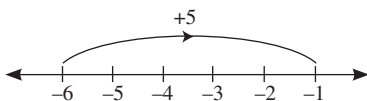
Answer: C

9 (a)



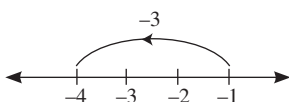
$4 + (+2) = 6$

(b)



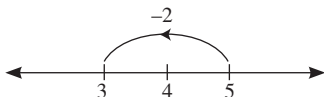
$-6 + (+5) = -1$

(c)



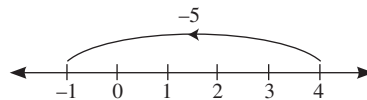
$-1 + (-3) = -4$

(d)



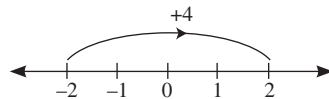
$5 + (-2) = 3$

10 (a)



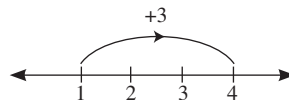
$4 - (+5) = -1$

(b)



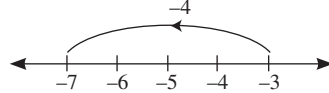
$-2 - (-4) = 2$

(c)



$1 - (-3) = 4$

(d)



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

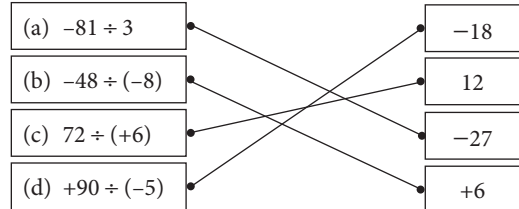
11 (a) $(+4) \times 8 = 32$

(b) $(+6) \times (-5) = -30$

(c) $(-9) \times (-2) = 18$

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

12



13 (a) $-27 + (-5) \times (-8)$

$= -27 + 40$

$= 13$

(b) $13 \times (-3) + (-42) \div (-6)$

$= -39 + 7$

$= -32$

14 (a) (i) $284 + 59 + 16 = (284 + 16) + 59$

$= 300 + 59$

$= 359$

(ii) $9 \times 608 = 9 \times (600 + 8)$

$= 9 \times 600 + 9 \times 8$

$= 5400 + 72$

$= 5472$

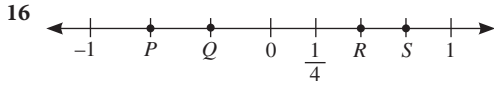
(b) (i) Associative Law

(ii) Distributive Law

15 Height above sea level

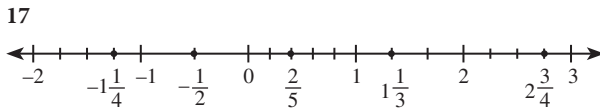
$= 726 - 25 + 39 - 54$

$= 686$ m



$$P = -\frac{2}{3}, Q = -\frac{1}{3}, R = \frac{1}{2}, S = \frac{3}{4}$$

Answer: C



$$-1\frac{1}{4}, -\frac{1}{2}, \frac{2}{5}, 1\frac{1}{3}, 2\frac{3}{4}$$

18 (a) $3 + \left(-2\frac{2}{7}\right) - \frac{1}{3}$

$$= 3 - \frac{16}{7} - \frac{1}{3}$$

$$= \frac{63 - 48 - 7}{21}$$

$$= \frac{8}{21}$$

(b) $\left(\frac{1}{6} - \frac{1}{7}\right) \times 1\frac{2}{5}$

$$= \frac{7-6}{42} \times \frac{7}{5}$$

$$= \frac{1}{42} \times \frac{7}{5}$$

$$= \frac{1}{6} \times \frac{1}{5}$$

$$= \frac{1}{30}$$

(c) $\frac{9}{10} - 1\frac{7}{8} \div \left(-1\frac{1}{4}\right)$

$$= \frac{9}{10} - \frac{15}{8} \div \left(-\frac{5}{4}\right)$$

$$= \frac{9}{10} + \frac{15}{8} \times \frac{4}{5}$$

$$= \frac{9}{10} + \frac{3}{2}$$

$$= \frac{9+15}{10}$$

$$= \frac{24}{10}$$

$$= \frac{12}{5}$$

$$= 2\frac{2}{5}$$

19 (a) $\frac{1}{2} - \left(-\frac{1}{6}\right) \div \frac{1}{12}$

$$= \frac{1}{2} + \frac{1}{6} \times 12$$

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

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

(b) $-\frac{10}{21} \times \left(-3\frac{1}{2}\right) + \left(-\frac{5}{9}\right)$

$$= -\frac{10}{21} \times \left(-\frac{7}{2}\right) - \frac{5}{9}$$

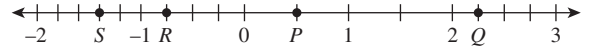
$$= \frac{5}{3} - \frac{5}{9}$$

$$= \frac{15-5}{9}$$

$$= \frac{10}{9}$$

$$= 1\frac{1}{9}$$

20



$$P = 0.5, Q = 2.25, R = -0.75, S = -1.4$$

Answer: C

21 $-6.1, -4.73, -2.94, -0.1, 2.36$

22 I: $18.11 - (-5.9) - (+20.3)$

$$= 18.11 + 5.9 - 20.3$$

$$= 3.71$$

II: $(-13.8) + (-10.65) - (-1.08)$

$$= -13.8 - 10.65 + 1.08$$

$$= -23.37$$

III: $6.1 \times (-3.7) - (-4.19)$

$$= -22.57 + 4.19$$

$$= -18.38$$

IV: $(-8.73) + (-10.38) \div 0.6$

$$= -8.73 - 10.38 \div 0.6$$

$$= -8.73 - 17.3$$

$$= -26.03$$

23 $4.12 = \frac{103}{25}$

$$1.333 \dots = \frac{4}{3}$$

$$1\frac{2}{9} = \frac{11}{9}$$

Answer: B

24 $\frac{2}{3} \times (-2.04) + (-7) \div \left(-\frac{5}{19}\right) = -\frac{2}{3} \times 2.04 + 7 \times \frac{19}{5}$

$$= -1.36 + 26.6$$

$$= 25.24$$

25 $\frac{5}{12} + \left(8 - 3\frac{3}{4}\right) \times \left(-1\frac{1}{3}\right) = \frac{5}{12} + \left(8 - \frac{15}{4}\right) \times \left(-\frac{4}{3}\right)$

$$= \frac{5}{12} + \frac{17}{4} \times \left(-\frac{4}{3}\right)$$

$$= \frac{5}{12} - \frac{17}{4} \times \frac{4}{3}$$

$$= \frac{5}{12} - \frac{17}{3}$$

$$= \frac{5-68}{12}$$

$$= -\frac{63}{12}$$

$$= -\frac{21}{4}$$

$$= -5\frac{1}{4}$$

Summative Practice

1 $-9, -8, -5, -4, -1$

Answer: **B**

2



$P = -12, Q = 9$

Answer: **D**

3 A: $(-2) + (-6) = -2 - 6 = -8$

B: $(-6) - (-10) = -6 + 10 = 4$

C: $(+3) - (-3) = 3 + 3 = 6$

D: $(+1) + (-5) = 1 - 5 = -4$

Answer: **C**

$$4 \frac{p-q}{r} = \frac{1\frac{1}{4} - \left(-1\frac{1}{5}\right)}{5\frac{1}{4}}$$

$$= \frac{\frac{5}{4} + \frac{6}{5}}{\frac{21}{4}}$$

$$= \left(\frac{5}{4} + \frac{6}{5}\right) \div \frac{21}{4}$$

$$= \left(\frac{25+24}{20}\right) \times \frac{4}{21}$$

$$= \frac{49}{20} \times \frac{4}{21}$$

$$= \frac{7}{5} \times \frac{1}{3} = \frac{7}{15}$$

Answer: **A**

$$5 \frac{3 - (-9)}{-9 + (-6)} = \frac{3 + 9}{-9 - 6}$$

$$= \frac{12}{-15}$$

$$= -\frac{4}{5}$$

Answer: **D**

6 $a = 8$

$b = 2a$

$= 2 \times 8$

$= 16$

$c = b - 13$

$= 16 - 13$

$= 3$

$(a + b) \div c = (8 + 16) \div 3$

$= 24 \div 3$

$= 8$

7 $16 - (-1.2) \div \frac{2}{3}$

$= 16 + 1.2 \times \frac{3}{2}$

$= 16 + 1.8$

$= 17.8$

$$8 \ 1 - \frac{10}{11} \times \left(\frac{5}{6} - 0.8\right)$$

$$= 1 - \frac{10}{11} \times \left(\frac{5}{6} - \frac{4}{5}\right)$$

$$= 1 - \frac{10}{11} \times \frac{25-24}{30}$$

$$= 1 - \frac{10}{11} \times \frac{1}{30}$$

$$= 1 - \frac{1}{33}$$

$$= \frac{32}{33}$$

9 (a) $60 \times 10.8 \times 5 = (60 \times 5) \times 10.8$ (I)

$$= 300 \times (10 + 0.8)$$

$$= 300 \times 10 + 300 \times 0.8$$
 (II)
$$= 3\,000 + 240$$

$$= 3\,240$$

(b) Step I: Associative Law

Step II: Distributive Law

10 $72.4 \times 6 + 6 \times 35.7 - 6 \times 8.1$

$$= 6 \times 72.4 + 6 \times 35.7 - 6 \times 8.1$$

$$= 6 \times (72.4 + 35.7 - 8.1)$$

$$= 6 \times 100$$

$$= 600$$

11 $\frac{7}{8} \div \left(-1\frac{5}{12}\right) \times \left(-\frac{2}{7}\right) = \frac{7}{8} \div \left(-\frac{17}{12}\right) \times \left(-\frac{2}{7}\right)$

$$= \frac{7}{8} \times \left(-\frac{12}{17}\right) \times \left(-\frac{2}{7}\right)$$

$$= \frac{7}{8} \times \frac{12}{17} \times \frac{2}{7}$$

$$= \frac{3}{17}$$

12 (a) $-3.7 - (-14.9) = -3.7 + 14.9$

$$= 11.2$$

(b) $\frac{-3.7 - (-14.9)}{-1.6} = \frac{11.2}{-1.6}$

$$= -7$$

13 (a) $2\frac{1}{4} \times 3 + (-80.4) \div (-4.8) = \frac{9}{4} \times 3 + 80.4 \div 4.8$

$$= 6.75 + 16.75$$

$$= 23.5$$

(b) $1\frac{1}{6} - \frac{13}{24} \div 9\frac{3}{4} - \left(-\frac{2}{9}\right)$

$$= \frac{7}{6} - \frac{13}{24} \div \frac{39}{4} + \frac{2}{9}$$

$$= \frac{7}{6} - \frac{13}{24} \times \frac{4}{39} + \frac{2}{9}$$

$$= \frac{7}{6} - \frac{1}{18} + \frac{2}{9}$$

$$= \frac{21-1+4}{18}$$

$$= \frac{24}{18}$$

$$= \frac{4}{3}$$