1. Calculate the following. (OP1A-CH01-Q08)

   (a) \((-1.25) + (-2.5) - (-2.75)\)  
   (b) \(12 - (-3) \times (+5) + (-28)\)  

   (c) \((+1) + (-2) + \cdots + (+99) + (-100)\)  
   (d) \((-4) \times (+6) \div (-10) + (-3) \div (+5)\)  

   (e) \((-8) \times 4 + 3 \div 1 + (-5)[3 + 8 \times (-6)]\)  
   (f) \((-0.3) + (+0.6) - (-1.2)\)  

   (g) \((-2.7) + (-3.5) - (-2.1) - (+0.2)\)  
   (h) \((-5) + (-7.5) - (-8.5) + (+2)\)  

   (i) \(9.1^2 + (-9.1^2)\)  
   (j) \((-2)^3 + (-2^3) - (-1)^{2002}\)  

   (k) \((2^3 - 3^2) \times (-1) + 5^4\)  
   (l) \((-2)^3 - (-2^4) + (-2^5)\)  

   (m) \((+10) - [(-0.5)^2 \times (-4)^3 + (-5) \div (+0.5)] \times (-3)\)  

   (n) \(1^1 - 1^2 - 1^3 - \cdots - 1^{10000}\)  
   (o) \((-1)^1 + (-1)^2 + (-1)^3 + \cdots + (-1)^{10000}\)  

   (p) \((-2)^3 + (-2^4)\)  
   (q) \((-18) - [(-15) \times (+4) - (+1)]\)  

   (r) \((+1.5 - 4) - [(-1.5 + 4) - (-1.5)]^2\)  

   (s) \((-2)[(+3)(+2)(-2) + (-2) + (-2)(+3)] - (-3)^2\)  

2. Find the value of the following. (OP1A-CH01-Q09)

   (a) \(1 + \frac{2}{5} - \frac{7}{10}\)  
   (b) \(\frac{4}{2} \times 8 - 6 + \frac{2}{4}\)
3. (a) When a positive number is divided by 6, 9 and 15, the remainders are all 2. Find the smallest possible number. (OP1A-CH01-Q14)

(b) When a 3-digit number is divided by 8, the remainder is 2. When it is divided by 12, the remainder is 6. Find the largest and smallest possible value of the number.

4. (a) List all the factors of 200.

(b) List all the prime factors of 200.

(c) Write down a 2-digit number which is not prime but co-prime with 40, i.e. having no common factor with 40 except 1.

(d) Write down a 2-digit number which has exactly 3 factors.

(e) If \( A \) is a prime number, what is the sum of all the factors of \( A \)? Express your answers in terms of \( A \).
Suggested Answer

1. (a) \(-1.25 - 2.5 + 2.75 = -1\)
   (b) \(12 - (-15) - 28 = -1\)
   (c) \((-1)(50) = -50\)
   (d) \(2.4 - 00.6 = 1.8\)
   (e) \(-32 + 3 + 225 = 196\)
   (f) \(-0.3 + 0.6 + 1.2 = -2\)
   (g) \(-2.7 - 3.5 + 2.1 - 0.2 = -4.3\)
   (h) \(-5 - 7.5 + 8.5 + 2 = -2\)
   (i) \(9.1 - 9.1 = 0\)
   (j) \(-8 - 8 - 1 = -17\)
   (k) \((-8 - 9)(-1) = 99\)
   (l) \(-0.3 + 0.6 + 1.2 = -2\)
   (m) \(-2.7 - 3.5 + 2.1 - 0.2 = -4.3\)
   (n) \(-5 - 7.5 + 8.5 + 2 = -2\)
   (o) \(-2.7 - 3.5 + 2.1 - 0.2 = -4.3\)
   (p) \(-5 - 7.5 + 8.5 + 2 = -2\)
   (q) \(-2.7 - 3.5 + 2.1 - 0.2 = -4.3\)
   (r) \(-5 - 7.5 + 8.5 + 2 = -2\)
   (s) \(-2.7 - 3.5 + 2.1 - 0.2 = -4.3\)

2. (a) \(\frac{10 + 4 - 7}{10} = \frac{7}{10}\)
   (b) \(16 - 6 + \frac{1}{2} = 10 \frac{1}{2}\)
   (c) \(\left(\frac{1}{7}\right)\left(\frac{28}{3}\right) - 1 = \frac{4}{3} - 1 = \frac{1}{3}\)
   (d) \(1 - 20\left(\frac{5}{16} + \frac{2}{10}\right) = -9 \frac{1}{4}\)
   (e) \(\frac{3}{4}\left(\frac{15}{4}\right) = \frac{45}{16}\)
   (f) \(-\frac{1}{6} + \frac{2}{3} - \frac{1}{6} = \frac{1}{3}\)
   (g) \(\left(\frac{5}{6} - \frac{3}{4} - \frac{4}{5}\right)\left(-\frac{15}{4}\right) = \left(-\frac{43}{60}\right)\left(-\frac{15}{4}\right) = \frac{43}{16}\)

3. (a) L.C.M. of 6, 9 and 15 = 90
   \(\therefore\) The Smallest possible number = 90 + 2 = 92
   (b) From the question, when 6 is added to the number, the new number is divisible by 8 and 12.
   The L.C.M. of 8 and 12 is 24.
   The smallest 3-digit multiple of 24 is 120.
   So, the smallest 3-digit number = 120 - 6 = 114
   The largest 3-digit multiple of 24 is 984
   So, the largest 3-digit number = 984 - 6 = 978

4. (a) 1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 200
   (b) 2, 5
   (c) 21 (21 has 4 factors, thus 21 is not a prime number. Also 21 does not have any common factors except 1 with 40, so 21 is co-prime with 40. Accept other possible numbers.)
   (d) 25 / 49
   (e) The sum = A + 1