

SOLUTION:

Variety Questions

Sol 1. (d)

$$2 \times 3 \div 2 \text{ of } 3 \times 2 \div (4 + 4 \times 4 \div 4 \text{ of } 4 - 4 \div 4 \times 4) \\ \Rightarrow 2 \times 3 \div 6 \times 2 \div (4 + 4 \times 4 \div 16 - 4 \div 4 \times 4) \\ \Rightarrow 2 \times \frac{1}{2} \times 2 \times 1 = 2$$

Sol 2. (d)

$$2\frac{7}{8} \div (3\frac{5}{6} \div \frac{2}{7} \text{ of } 2\frac{1}{3}) \times [(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}) \times \frac{5}{9}] \\ \Rightarrow \frac{23}{8} \div (\frac{23}{6} \div \frac{2}{3}) \times [10] = 5$$

Sol 3. (c)

$$(5+3 \div 5 \times 5) / (3 \div 3 \text{ of } 6) \text{ of } (4 \times 4 \div 4 \text{ of } 4 + 4 \div 4 \times 4) \\ \Rightarrow \frac{(5+3 \div 5 \times 5)}{(3 \div 3 \text{ of } 6) \text{ of } (4 \times 4 \div 4 + 4 \div 4 \times 4)} \\ \Rightarrow \frac{8}{\frac{1}{6} \text{ of } 5} \\ \Rightarrow \frac{48}{5} = 9\frac{3}{5}$$

Sol 4. (b)

$$\frac{1.0025+6.25 \times 10^{-6}}{0.0025+0.95} \Rightarrow (\frac{1.00250625}{0.9525}) = 1.0525$$

Sol 5. (b)

$$5 \div 5 \text{ of } 5 \times 2 + 2 \div 2 \text{ of } 2 \times 5 - (5 - 2) \div 6 \times 2 = 5 \div 25 \times 2 + 2 \div 4 \times 5 - 3 \div 6 \times 2 \\ = \frac{1}{5} \times 2 + \frac{1}{2} \times 5 - \frac{1}{2} \times 2 = \frac{2}{5} + \frac{5}{2} - 1 \\ = \frac{4+25}{10} - 1 = \frac{19}{10}$$

Sol 6. (d)

$$\frac{9}{15} \text{ of } (\frac{2}{3} \div \frac{2}{3} \text{ of } \frac{3}{2}) \div (\frac{3}{4} \times \frac{3}{4} \div \frac{3}{4} \text{ of } \frac{4}{3}) \text{ of } (\frac{5}{4} \div \frac{5}{2} \times \frac{2}{5} \text{ of } \frac{4}{5}) \\ \Rightarrow \frac{9}{15} \text{ of } \frac{2}{3} \div \frac{9}{16} \text{ of } \frac{4}{25} \\ \Rightarrow \frac{2}{5} \div \frac{9}{100} \\ \Rightarrow \frac{2}{5} \times \frac{100}{9} = \frac{40}{9}$$

Sol 7. (a)

$$16 \div 4 \text{ of } 4 \times [3 \div 4 \text{ of } \{4 \times 3 \div (3 + 3)\}] \div (2 \div 4 \text{ of } 8) \\ \Rightarrow 16 \div 16 \times [3 \div 4 \text{ of } \{4 \times 3 \div 6\}] \div (2 \div 32) \\ \Rightarrow 1 \times [3 \div 4 \text{ of } 2] \div \frac{1}{16}$$

$$\Rightarrow 1 \times \frac{3}{8} \div \frac{1}{16} = 6$$

Sol 8. (c)

$$\frac{8}{9} \text{ of } (5\frac{1}{4} \div 2\frac{1}{3} \text{ of } 4) \div (8 \div \frac{2}{3} \text{ of } \frac{4}{5}) \text{ of } (8 \times \frac{2}{3} \div \frac{4}{5}) \\ \Rightarrow \frac{8}{9} \text{ of } (\frac{21}{4} \div \frac{28}{3}) \div (8 \div \frac{8}{15}) \text{ of } (8 \times \frac{5}{6}) \\ \Rightarrow \frac{8}{9} \text{ of } \frac{9}{16} \div 15 \text{ of } \frac{20}{3} \\ \Rightarrow \frac{1}{2} \div 100 \\ \Rightarrow \frac{1}{200}$$

Sol 9. (a)

$$4.5 - (3.2 \div 0.8 \times 5) + 3 \times 4 \div 6 \\ \Rightarrow 4.5 - (4 \times 5) + 2 \\ \Rightarrow 6.5 - 20 \\ = -13.5$$

Sol 10. (a)

$$5 \div 10 \text{ of } 10 \times 4 + 4 \div 4 \text{ of } 4 \times 10 - (10 - 4) \div 16 \times 4 \\ \Rightarrow 5 \div 100 \times 4 + 4 \div 16 \times 10 - \frac{3}{8} \times 4 \\ \Rightarrow \frac{1}{20} \times 4 + \frac{5}{2} - \frac{3}{2} \\ \Rightarrow 0.2 + 1 = 1.2$$

Sol 11. (a)

$$\frac{(3\frac{1}{2} - \frac{2}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div (\frac{6}{7} - (\frac{1}{7} + \frac{1}{5}))} \Rightarrow \frac{(\frac{13}{5}) \div \frac{8}{5}}{\frac{8}{7} \div (\frac{6}{7} - (\frac{2}{7}))} \\ \Rightarrow \frac{\frac{13}{8}}{\frac{8}{7} \div (\frac{4}{7})} = \frac{13}{8 \times 8} = \frac{13}{64}$$

Sol 12. (d) Given fraction is

$$\frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{57.5 \times 57.5 + 32.5 \times 32.5 - 57.5 \times 32.5} \\ \Rightarrow \frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25) \times 100} \\ \Rightarrow \frac{(5.75 + 3.25)(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25)}{(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25) \times 100} \\ \Rightarrow \frac{9}{100} = 0.09$$

Sol 13. (c)

$$\sqrt{4 + \sqrt{144}} = \sqrt{4 + 12} = \sqrt{16} = 4$$

Practice Questions

Sol 1. (d)

$$7\frac{1}{2} \times (3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3}) + [11 - (\frac{5}{8} + 3 - 1\frac{1}{4})] \div 5\frac{3}{4} - 5 \div 5 \times 5 \text{ of } 5 \div 25$$

$$\Rightarrow \frac{15}{2} \times (\frac{16}{5} \div 24) + [11 - \frac{19}{8}] \div \frac{23}{4} - 1 \times 25 \div 25 \\ \Rightarrow \frac{15}{2} \times \frac{2}{15} + \frac{69}{8} \div \frac{23}{4} - 1 \\ \Rightarrow 1 + \frac{3}{2} - 1 = 1\frac{1}{2}$$

Sol 2. (d)

$$6 - 6 \div 6 \times 6 + (6 \div 6 \text{ of } 6) \times 6 - (3\frac{2}{3} \div \frac{11}{30} \text{ of } \frac{2}{3}) \div 5 \\ \Rightarrow 6 - 6 + (6 \div 36) \times 6 - (\frac{11}{3} \div \frac{11}{45}) \div 5 \\ \Rightarrow \frac{1}{6} \times 6 - 15 \div 5 \\ \Rightarrow 1 - 3 = -2$$

Sol 3. (c)

$$\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9} \text{ of } 1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7} \text{ of } 2\frac{1}{3} \\ \Rightarrow \frac{3}{4} \times \frac{8}{3} \div \frac{2}{3} + \frac{2}{23} \times \frac{23}{6} \div \frac{2}{3} \\ \Rightarrow \frac{3}{4} \times 4 + \frac{1}{2} \\ \Rightarrow 3\frac{1}{2}$$

Sol 4. (a)

$$3.8 - (4.2 \div 0.7 \times 3) + 5 \times 2 \div 0.5 \\ \Rightarrow 3.8 - (6 \times 3) + 5 \times 4 \\ \Rightarrow 3.8 - 18 + 20 \\ = 5.8$$

Sol 5. (d)

$$2.8 + (5.2 \div 1.3 \times 2) - 6 \times 3 \div 8 + 2 \\ \Rightarrow 2.8 + (4 \times 2) - 2.25 + 2 \\ \Rightarrow 2.8 + 8 - 2.25 + 2 \\ = 10.55$$

Sol 6. (b)

$$7.2 + (8.4 \div 0.12 \times 0.2) - 5 \times 3 \div 0.05 + 3 \\ \Rightarrow 7.2 + (70 \times 0.2) - 5 \times 60 + 3 \\ \Rightarrow 7.2 + 14 - 300 + 3 \\ = -275.8$$

Sol 7. (b)

$$5.8 + (7.4 \div 3.7 \times 5) - 6 \times 2 \div 2.5 \\ \Rightarrow 5.8 + (2 \times 5) - 6 \times 0.8 \\ \Rightarrow 5.8 + 10 - 4.8 \\ = 11$$

Sol 8. (d)

Days 8-12 : Simplification

$$3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 1.2$$

$$\Rightarrow 3.8 + (2 \times 2) - 4 \times 2.5$$

$$\Rightarrow 3.8 + 4 - 10$$

$$= -2.2$$

Sol 9. (b)

$$7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$$

$$\Rightarrow 7.5 + (1.2 \times 2) - 8 \times 1.25$$

$$\Rightarrow 7.5 + 2.4 - 10 = -0.1$$

Sol 10. (c)

$$108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$$

$$\Rightarrow 3 \times 4 + 2.5 \times 8 - 10$$

$$\Rightarrow 12 + 10 = 22$$

Sol 11. (d)

$$21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6$$

$$\Rightarrow 6 \times 2 + 0.25 \times 4 - 6$$

$$\Rightarrow 12 + 1 - 6 = 7$$

Sol 12. (c)

$$15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5$$

$$\Rightarrow 15.2 + 2 \times 2 - 3.5 \times 4$$

$$\Rightarrow 19.2 - 14 = 5.2$$

Sol 13. (c)

$$9 \frac{3}{4} \div [2 \frac{1}{6} \div \{4 \frac{1}{3} - (2 \frac{1}{2} + \frac{3}{4})\}]$$

$$\Rightarrow \frac{39}{4} \div [\frac{13}{6} \div \{\frac{13}{3} - \frac{13}{4}\}]$$

$$\Rightarrow \frac{39}{4} \div [\frac{13}{6} \div \frac{13}{12}]$$

$$\Rightarrow \frac{39}{4} \div 2$$

$$= \frac{39}{8}$$

CHSL

Sol 14. (d)

$$\frac{3}{4} \div \frac{3}{4} \text{ of } \frac{3}{4} \times \frac{4}{3} + \frac{5}{2} \div \frac{2}{5} \text{ of } \frac{5}{4} - (\frac{2}{3} + \frac{2}{3} \text{ of } \frac{5}{6})$$

$$\Rightarrow \frac{3}{4} \div \frac{9}{16} \times \frac{4}{3} + \frac{5}{2} \div \frac{1}{2} - (\frac{2}{3} + \frac{5}{9})$$

$$\Rightarrow \frac{16}{9} + 5 - \frac{11}{9}$$

$$= \frac{50}{9}$$

Sol 15. (c)

$$\frac{3 \div \{5 - 5 \div (6 - 7) \times 8 + 9\}}{4 + 4 \times 4 \div 4 \text{ of } 4}$$

$$\Rightarrow \frac{3 \div \{5 - 5 \div (-1) \times 8 + 9\}}{4 + 4 \times 4 \div 16}$$

$$\Rightarrow \frac{3 \div \{5 + 5 \times 8 + 9\}}{4 + 1}$$

$$\Rightarrow \frac{3}{54 \times 5} = \frac{1}{90}$$

Sol 16. (d)

$$3 \times 2 \div 3 \text{ of } 12 - 3 \div 2 \times (2 - 3) \times 2 + 3 \div 2 \text{ of } 3$$

$$\Rightarrow 3 \times 2 \div 36 - 3 \div 2 \times (-1) \times 2 + 3 \div 6$$

$$\Rightarrow \frac{1}{6} + 3 + \frac{1}{2}$$

$$\Rightarrow \frac{22}{6} = 3 \frac{2}{3}$$

Sol 17. (a)

$$3 \times 2 \div 3 \text{ of } 2 \times 3 \div (5 + 5 \times 5 \div 5 \text{ of } 5 - 5 \div 10 \text{ of } \frac{1}{5})$$

$$\Rightarrow 3 \times 2 \div 6 \times 3 \div (5 + 5 \times 5 \div 25 - 5 \div 2)$$

$$\Rightarrow 3 \times \frac{1}{3} \times 3 \div (5 + 1 - \frac{5}{2})$$

$$\Rightarrow 3 \times \frac{2}{7} = \frac{6}{7}$$

Sol 18. (a)

$$(\frac{7}{5} \div \frac{7}{10} \text{ of } \frac{3}{4}) \div \frac{4}{9} - (\frac{7}{16} \div 10 \frac{1}{2} \times 7 \frac{1}{5}) \times \frac{5}{12}$$

$$\Rightarrow (\frac{7}{5} \div \frac{21}{40}) \div \frac{4}{9} - (\frac{1}{24} \times \frac{36}{5}) \times \frac{5}{12}$$

$$\Rightarrow \frac{8}{3} \div \frac{4}{9} - \frac{3}{10} \times \frac{5}{12}$$

$$\Rightarrow 6 - \frac{1}{8} = \frac{47}{8}$$

Sol 19. (b)

$$3 \times 6 \div 4 \text{ of } 6 - 6 \div 2 \times (4 - 6) + 4 - 2 \times 3 \div 6 \text{ of } \frac{1}{3}$$

$$\Rightarrow 3 \times 6 \div 24 - 3 \times (-2) + 4 - 2 \times \frac{3}{2}$$

$$\Rightarrow \frac{3}{4} + 6 + 4 - 3$$

$$\Rightarrow 7 \frac{3}{4}$$

Sol 20. (a)

$$15 \text{ of } 8 - 6 + [(27 - 3) \div 6 - 4]$$

$$\Rightarrow 120 - 6 + [4 - 4]$$

$$= 114$$

Sol 21. (b)

$$15 \text{ of } 8 + 6 + [(27 - 3) \div 6 + 4]$$

$$\Rightarrow 120 + 6 + [4 + 4]$$

$$= 134$$

Sol 22. (d)

$$\frac{(3 \frac{1}{5} + \frac{2}{5}) \div \frac{8}{5}}{1 \frac{1}{7} \div \{\frac{6}{7} - (\frac{1}{7} \div \frac{1}{3})\}}$$

$$\Rightarrow \frac{\frac{19}{5}}{\frac{8}{7} \div \{\frac{6}{7} - (\frac{1}{21})\}}$$

$$= \frac{19}{8 \times 8} = \frac{19}{64}$$

Sol 23. (a)

$$\frac{(3 \frac{1}{5} + \frac{2}{5}) \div \frac{8}{5}}{1 \frac{1}{7} \div \{\frac{6}{7} + (\frac{1}{7} \div \frac{1}{3})\}} \Rightarrow \frac{(\frac{19}{5}) \div \frac{8}{5}}{\frac{8}{7} \div \{\frac{6}{7} + (\frac{1}{21})\}}$$

$$\Rightarrow \frac{\frac{19}{8}}{\frac{8}{7} \div \frac{19}{7}} = \frac{19}{8}$$

Sol 24. (c)

$$\frac{(3 \frac{1}{5} + \frac{2}{5}) \div \frac{8}{5}}{1 \frac{1}{8} \div \{\frac{5}{8} + (\frac{1}{8} \div \frac{1}{3})\}}$$

$$\Rightarrow \frac{(\frac{19}{5}) \div \frac{8}{5}}{\frac{9}{8} \div \{\frac{5}{8} + (\frac{1}{24})\}}$$

$$\Rightarrow \frac{\frac{19}{8}}{\frac{9}{8} \div 1} = \frac{19}{9}$$

Sol 25. (d)

$$\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 - 24 - 6}{37 - 21} = 1$$

Sol 26. (d)

$$\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 - 24 - 6}{11 + 21} = \frac{1}{2}$$

Sol 27. (c)

$$\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 + 24 - 6}{11 + 21} = 2$$

Sol 28. (a)

$$2 \frac{1}{3} \text{ of } (\frac{3}{5} \div \frac{2}{9}) - (4 \frac{2}{5} + \frac{19}{20} \div \frac{1}{2})$$

$$\Rightarrow \frac{7}{3} \text{ of } (\frac{27}{10}) - (\frac{22}{5} + \frac{19}{10})$$

$$\Rightarrow \frac{63}{10} - \frac{63}{10} = 0$$

Sol 29. (c)

$$[1 \frac{1}{5} \text{ of } \{\frac{3}{7} - (1 \frac{4}{15} - \frac{13}{15}) \times \frac{5}{7}\}] \div (\frac{6}{7} \div 5)$$

$$\Rightarrow [\frac{6}{5} \text{ of } \{\frac{3}{7} - \frac{6}{15} \times \frac{5}{7}\}] \div \frac{6}{35}$$

$$\Rightarrow [\frac{6}{5} \text{ of } \{\frac{3}{7} - \frac{2}{7}\}] \div \frac{6}{35}$$

$$\Rightarrow \frac{6}{35} \div \frac{6}{35} = 1$$

Sol 30. (d)

$$\frac{1}{2} \text{ of } \frac{8}{5} \div \{2 \frac{1}{5} - (\frac{5}{16} + \frac{3}{5} \times 1 \frac{7}{8} \div \frac{2}{3})\}$$

$$\Rightarrow \frac{4}{5} \div \{\frac{11}{5} - (\frac{5}{16} + \frac{3}{5} \times \frac{45}{16})\}$$

$$\Rightarrow \frac{4}{5} \div \{\frac{11}{5} - 2\}$$

$$= 4$$

Sol 31. (a)

$$\frac{0.01404}{24^2 + 6^2 - 144} \Rightarrow \frac{0.01404}{612 - 144} \Rightarrow \frac{0.01404}{468}$$

$$\Rightarrow \frac{0.01404}{468} = 3 \times 10^{-5}$$

Sol 32. (c)

$$\{1 \frac{1}{4} \text{ of } (2 \frac{1}{3} \div 1 \frac{2}{5}) - 1 \frac{5}{12}\}$$

$$+ \frac{1}{9} \div 2 \frac{1}{3} + \frac{2}{7} + \frac{1}{6}$$

$$\Rightarrow \{\frac{5}{4} \text{ of } (\frac{5}{3}) - \frac{17}{12}\} + \frac{1}{21} + \frac{2}{7} + \frac{1}{6}$$

$$\Rightarrow \frac{25}{12} - \frac{17}{12} + \frac{1}{2} = \frac{14}{12} = \frac{7}{6}$$