Hw

Exercise 11-A

1. Find the average of

a) 50, 41, 47, 48, 40, 44

$$\text{Average} = \frac{\text{Sum of the quantities}}{\text{Number of quantities}}$$

$$= \frac{50 + 41 + 47 + 48 + 40 + 44}{6}$$

$$= \frac{270}{6} = 45$$

b) 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

$$\text{Average} = \frac{\text{Sum of the quantities}}{\text{Number of quantities}}$$

$$\frac{10+20+30+40+50+60+70+80+90+100}{10}$$

$$= \frac{550}{10} = 55$$

c) 35, 42, 31, 53, 16, 34, 27

Average = $\frac{\text{Sum of the quantities}}{\text{Number of quantities}}$

$$= \frac{35+42+31+53+16+34+27}{7}$$

$$= \frac{238}{7} = 34$$

d) 24, 21, 26, 25, 18, 20, 27, 23

Average = $\frac{\text{Sum of the quantities}}{\text{Number of quantites}}$

$$= \frac{24+21+26+25+18+20+27+23}{8}$$

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$= \frac{184}{8} = 23$

e) $\frac{3}{8}, 1\frac{1}{4}, 2\frac{5}{6}, 4\frac{1}{2}, 6\frac{4}{3}$

$\frac{3}{8} + \frac{5}{4} + \frac{17}{6} + \frac{9}{2} + \frac{22}{3}$ ~~LCM=24~~

$\frac{3\times3}{8\times3} + \frac{5\times6}{4\times6} + \frac{17\times4}{6\times4} + \frac{9\times12}{2\times12} + \frac{22\times8}{3\times8}$ LCM = 24

$= \frac{9+30+68+108+176}{24}$

Ans $\frac{391}{24}$

The no. of quantities given = 5

2	8, 4, 6, 2, 3
2	4, 2, 3, 1, 3
2	2, 1, 3, 1, 3
3	1, 1, 3, 1, 3
	1, 1, 1, 1, 1

$2\times2\times2\times3 = 24$

Average $= \frac{391}{24} \div 5 = \frac{391}{24} \times$

$= \frac{391}{120} = 3\frac{31}{120}$

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2. The rainfall in Jamshedpur for 6 consecutive years was 28.5 cm, 30.25 cm, 32.4 cm, 31.6 cm & 30.25 cm. Find the average rainfall of Jamshedpur

Ans Solution

The rainfall for 1st year = 28.5cm
The rainfall for 2nd year = 30.25cm
The rainfall for 3rd year = 32.4 cm
The rainfall for 4th yea = 31.6cm
The rainfall for 5th year = 24 cm
The rainfall for 6 th year = 30.25cm

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{28.5+30.25+32.4+31.6+24+30.25}{6}$$

$$177 \div 6 = \frac{177}{6} = 29.5 \text{ cm}$$

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1.f) $2\frac{3}{5}, 3\frac{3}{10}, 3\frac{1}{2}, \frac{2}{5}, \frac{9}{10}, 1\frac{1}{10}$

Solution

$\frac{13}{5}, \frac{33}{10}, \frac{7}{2}, \frac{2}{5}, \frac{9}{10}, \frac{11}{10}$

$\frac{13\times2}{5\times2} + \frac{33\times1}{10\times1} + \frac{7\times5}{2\times5}$

$\frac{2\times2}{5\times2} + \frac{9\times1}{10\times1} + \frac{11\times1}{10\times1}$

5	5, 10, 25, 10, 10
2	1, 2, 2, 1, 2, 2
	1, 1, 1, 1, 1, 1

$5\times2=10$

$\frac{26}{10} + \frac{33}{10} + \frac{35}{10} + \frac{4}{10} + \frac{9}{10} + \frac{11}{10} = \frac{118}{10}$

Average $= \frac{118}{10} \div 6 =$

$\frac{118}{10} \times \frac{1}{6} = \frac{118}{60} = 1\frac{58}{60}$

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9) $\frac{7}{12}, 2\frac{5}{6}, 5\frac{3}{4}, \frac{1}{2}, \frac{5}{12}, \frac{1}{6}$

$\frac{7}{12}, \frac{17}{6}, \frac{23}{4}, \frac{1}{2}, \frac{5}{12}, \frac{1}{6}$

$\frac{7\times1}{12\times1} + \frac{17\times2}{6\times2} + \frac{23\times3}{4\times3} + \frac{1\times6}{2\times6}$

$\frac{5\times1}{12\times1} + \frac{1\times2}{6\times2}$

2	12, 6, 4, 2, 12, 6
2	6, 3, 2, 1, 6, 3
3	3, 3, 1, 1, 3, 3
	1, 1, 1, 1, 1, 1

$2\times2\times3 = 12$

$\frac{7+34+69+6+5+2}{12} = \frac{123}{12}$

Average $= \frac{123}{12} \div 6$

$\frac{123}{12} \times \frac{1}{6} = \frac{123}{72} = 1\frac{51}{12}$

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h) $\frac{1}{4}, \frac{3}{4}, \frac{1}{2}, \frac{1}{6}, \frac{3}{8}$

2	4, 4, 2, 6, 8
2	2, 2, 1, 3, 4
2	1, 1, 1, 3, 2
3	1, 1, 1, 3, 1
	1, 1, 1, 1, 1

$\frac{1\times6}{4\times6} + \frac{3\times6}{4\times6} + \frac{1\times12}{2\times12} + \frac{1\times4}{6\times4} + \frac{3\times3}{8\times3}$

$\frac{6+18+12+4+9}{24} = \frac{49}{24}$ $2\times2\times2\times3 = 24$

Average $= \frac{49}{24} \div \frac{1}{5}$

$\frac{49}{24} \times \frac{1}{5} = \frac{49}{120}$

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3) Find the average of all even numbers between 7 and 23.

8, 10, 12, 14, 16, 18, 20, 22.

Average = $\frac{\text{Sum of the quantities}}{\text{Number of quantities}}$

= $\frac{8+10+12+14+16+18+20+22}{8} = \frac{120}{8}$

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

4) Find the average of all odd number between 10 & 30.

11, 13, 15, 17, 19, 21, 23, 25, 27, 29

Average = $\frac{\text{Sum of the quantities}}{\text{Number of the quantities}}$

= $\frac{11+13+15+17+19+21+23+25+27+29}{10}$

$= \frac{200}{10} = 20$