8) median = 25

17, x, 24, x+7, 35, 36, 46

$x+7 = 25$

$x = 25-7$

$= 18$

9) Mode can be used for categorical or numerical data. When there are outliers mode can be used as it is not affected by them.

10) D. Sam asks the students in her class to identify their favorite colors and wants to know which color is the most common. - Mode can be used in this case to measure the central tendency of the data.

6) a)

Age in years	12	10	15	14	8
No. of Boys	5	3	2	6	4

$$\text{Mean age} = \frac{12\times5+10\times3+15\times2+14\times6+8\times4}{20}$$

$$= \frac{60+30+30+84+32}{20}$$

$$= \frac{236}{20} \; \frac{118}{10} \; \frac{59}{5} = 11.8 \text{ years}$$

b)

Marks	25	30	15	20	24
No. of Students	8	12	10	6	4

$$\text{Mean marks} = \frac{25\times8+30\times12+15\times10+20\times6+24\times4}{8+12+10+6+4}$$

$$= \frac{200+360+150+120+96}{40}$$

$$= \frac{926}{40} \; 463 = 23.15$$

7) a) 12, 18, 4, 8, 1, 8, 9, 11, 9, 10, 12, 8

mode = 8

b) 15, 22, 17, 19, 22, 17, 29, 24, 17, 15

mode = 17

c) 0, 3, 2, 1, 3, 5, 4, 3, 42, 1, 20

mode = 3

d) 1, 7, 2, 4, 5, 9, 8, 3

2) First 10 Fibonacci numbers = 0, 1, 1, 2, 3, 5, 8, 13, 21, 34

$$\text{mean} = \frac{88}{10} = 8.8$$

3) First 5 prime numbers = 2, 3, 5, 7, 11

$$\text{mean} = \frac{2+3+5+7+11}{5}$$

$$= \frac{28}{5} = 5.6$$

Median = 5

4) mean = 66

8, 11, 6, 14, x, 13

$$66 = \frac{8+11+6+14+x+13}{6}$$

$$396 = 52 + x$$

$$x = 344$$

5) mean = 9

6, 8, x+2, 10, 2x−1, 2

$$9 = \frac{6+8+x+2+10+2x-1+2}{6} = \frac{27+3x}{6}$$

$$54 = 27 + 3x$$

$$3x = 27$$

$$x = \frac{27}{3} 9 = 9$$

Observations → $x+2 = 9+2 = 11$

$2x-1 = 2 \times 9 - 1 = 17$

Central Tendencies

1) a) 9, 7, 11, 13, 2, 4, 5, 5

$$\text{mean} = \frac{9+7+11+13+2+4+5+5}{8}$$

$$= \frac{56}{8} 7 = 7$$

b) 2.2, 10.2, 14.7, 5.9, 4.9, 11.1, 10.5

$$\text{mean} = \frac{2.2+10.2+14.7+5.9+4.9+11.1+10.5}{7}$$

$$= \frac{59.5}{7} = 8.5$$

c) 11/4, 21/2, 51/2, 31/4, 21/2

$$\text{mean} = \frac{2.75+10.5+25.5+7.75+10.5}{5}$$

$$= \frac{57}{5} = 11.4$$