1) Sum of two integers = 28
One of the integers = -45
Another integer = 28 - (-45) = 73

2) To find the increase/decrease we need to ->
① Compare
$-20 < 30$
So, it is an increase.
② Subtract the greater number from the smaller one.
∴ 30 - (-20) = 50 (So, here 50 is the increase)

3) $23 \times 103 + 23 \times (-3)$
$= 23 \times (103 - 3)$
$= 23 \times 100$
$= 2300$

4) i) $\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20}$

ii) $\frac{4}{-7} = \frac{8}{-14} = \frac{12}{-21} = \frac{16}{-28}$

iii) $\frac{-5}{9} = \frac{-10}{18} = \frac{-15}{27} = \frac{-20}{36}$

iv) $\frac{8}{-16} = \frac{16}{-30} = \frac{24}{-45} = \frac{32}{-60}$

5) ii, iv, v.

6) LCM of 10, (-30), (-15) = 30
$\Rightarrow \frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}$

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

$$\frac{5}{-15} = \frac{5 \times (-2)}{-15 \times (-2)} = \frac{-10}{-30}$$

So, $\frac{-10}{30} < \frac{-11}{30} < \frac{21}{30}$

$\Rightarrow \frac{5}{-15} < \frac{-11}{-30} < \frac{7}{10}$

7) i) $\frac{-9}{25} + \left(\frac{1}{-75}\right)$

$= \left[\frac{-9 \times (-3)}{25 \times (-3)}\right] + \left(\frac{1}{-75}\right)$

$= \frac{27}{-75} + \left(\frac{1}{-75}\right)$

$\Rightarrow \frac{27+1}{-75} = \frac{28}{75}$

ii) $\frac{-9}{-16} + \left(\frac{-11}{8}\right)$

$= \frac{-9}{-16} + \left[\frac{-11 \times (-2)}{8 \times (-2)}\right]$

$= \frac{-9}{-16} + \left(\frac{22}{-16}\right)$

$\Rightarrow \frac{-9+22}{-16} = \frac{13}{-16}$

8) i) $\left(\frac{-4^{-2}}{5} \times \frac{3}{8}\right) + \left(\frac{9^{3}}{-8} \times \frac{10^{-2}}{3}\right) - \left(\frac{-3}{2} \times \frac{-1}{4}\right)$

$= \left(\frac{-6}{5}\right) + \left(\frac{-6}{1}\right) - \left(\frac{3}{8}\right)$

$= \frac{-48 + (-240) - 15}{40}$

$\Rightarrow \frac{-48-240-15}{40} = \frac{-(48+240)-15}{40}$

$\Rightarrow \frac{-288-15}{40} = \frac{-303}{40}$

$$\begin{array}{r} 42 \\ \times 6 \\ \hline 252 \end{array}$$

9.) $\frac{9}{17} + \frac{6}{13}$

$\Rightarrow \frac{9+6}{17+13} = \frac{15}{30} = \frac{1}{2}$

(iii) $(7.5 \times 40.4) \div 25$

$\Rightarrow \left(\frac{75}{10} \times \frac{404}{10}\right) \div 25$

$= \frac{30300}{100} \div 25$

$= \frac{30300}{100} \times \frac{1}{25}$

$= 12.12$

ii) $2.1 \div (0.1 \times 0.1)$

$= \frac{21}{10} \div \frac{1}{100}$

$= \frac{21}{10} \times \frac{100}{1}$

$= 210$

12.) i) 04.2×0.6

$\Rightarrow 2.52$

So, there are 3 significant figures.

ii) 0.08×25

$= 20$

So, there is 1 significant figures.

iii) $3.6 \div 0.12$

$= 30$

So, there is 1 significant figures.

14.) i) $5^4 \div 5^3 \times 5^5$

$= (5^{4-3}) \times 5^5$

$= 5^1 \times 5^5$

$= 5^6$

ii) $4^4 \div 4^3 \times 4^0$

$= 4^{4-3} \times 4^0$

$= 4^1 \times 4^0$

$= 4^{1+0} = 4^1$

iii) 1

15) $\frac{a^{-7} \times b^{-7} \times c^5 \times d^4}{a^3 \times b^{-5} \times c^{-3} \times d^8}$

$\Rightarrow \frac{c^{5-(-3)}}{a^{3-(-7)} \times b^{-5-(-7)} \times d^{8-4}}$

$\Rightarrow \frac{c^8}{a^{10} \times b^2 \times d^4}$

$\Rightarrow \frac{c^8}{a^{10} b^2 d^4}$

16) i) Monomial

ii) Binomial

iii) Monomial

17 i) -1

ii) $-p^2$

18 i) 3

ii) 5

19) $4x^3 + 2x^2 - x + 1$

$+ 2x^3 - 5x^2 - 3x + 6$

$+ x^2 + 8$

$+ 5x^3 - 7x$

$11x^3 - 2x^2 - 11x + 15$

20) $6m^3 + 4m^2 + 7m - 3$

$- 3m^3 + 4$

$3m^3 + 4m^2 + 7m + 1$

[illegible]

$(\ldots + 8c + 15)$ [illegible]

$c^2 + 8c + 15$

(3c − 5d)(4c − 6d)

$\Rightarrow 3c \times 4c + 3c \times 6d + 5d \times 4c + 5d \times 6d$

$= 12c - 18cd - 20cd + 30d$

$= 12c - 38cd + 30d$

22) i)

$$3x - 4y \,\big)\, 9x^2 - 24xy + 16y^2 \,\big(\, 3x + 8y$$

$9x^2 - 12xy$

$12xy + 16y^2$

$-12xy + 16y^2$

0

ii)

$$5x + 7y \,\big)\, 15x^2 + 31xy + 14y^2 \,\big(\, 3x + 2y$$

$15x^2 + 21xy$

$10xy + 14y^2$

$-10xy + 14y^2$

0

23) $y + \frac{y}{2} = \frac{7}{4} - \frac{y}{4}$

$= \frac{2y + y}{2} = \frac{7}{4} - \frac{y}{4}$

$= \frac{3y}{2} =$ [illegible]

$= 3y = 2($ [illegible]

23) $y + \frac{y}{2} = \frac{1}{4}$ of y

$\Rightarrow \frac{2y + y}{2} = \frac{1}{4} - y$

$\Rightarrow \frac{3y}{2} = \frac{1}{4} - y$

$\Rightarrow \frac{3y}{2} + \frac{y}{1} = \frac{1}{4}$

$\Rightarrow \frac{6y + y}{4} = \frac{1}{4}$

$\Rightarrow \frac{7y}{4} = \frac{1}{4}$

$\Rightarrow y = \frac{1}{4} \times \frac{4}{1} = 1$

24) Let the numbers be x and $2x$.

$\Rightarrow x + 2x = 18$

$\Rightarrow 3x = 18$

$\Rightarrow x = \frac{18}{3} = 6$

$\Rightarrow 2x = 2 \times 6 = 12$

25) i) $\{x : x$ is a natural number divisible by 3; $x < 18\}$

ii) $\{x : x$ is a prime number$\}$

iii) $\{x : x$ is a perfect square number less than 36$\}$

iv) $\{x : x$ is a whole number divisible by 0$\}$

v) $\{x : x$ is one of the first three days of the week$\}$

vi) $\{x : x$ is an odd natural number; $x > 23\}$

27) 5

28) i) Null set

ii) finite

iii) Null set

30i) Yes, they have an common arm.
ii) Yes, they have an common arm.

32i) ∠a = ∠b (Ext. alternate angle)
∠b = ∠c (Vertically opposite angles)

$119 \quad \frac{17}{6}$ $\qquad$ $119 \quad \frac{3}{2} x$

$\frac{3}{2}^{\circ}$

34) Two angles $\frac{3}{2}x$ and $\frac{4}{3}x$

So,

$61^{\circ} + \frac{3}{2}x + \frac{4}{3}x = 180^{\circ}$

$\Rightarrow \frac{3}{2}x + \frac{4}{3}x = 180^{\circ} - 61^{\circ}$

$\Rightarrow \frac{3}{2}x + \frac{4}{3}x = 119$

$\Rightarrow \frac{9x + 8x}{6} = 119$

$\Rightarrow \frac{17x}{6} = 119$

$\Rightarrow x = \frac{119}{1} \div \frac{17}{6}$

$\Rightarrow x = \frac{119}{1} \times \frac{6}{17}$

$\Rightarrow x = 42$

$\Rightarrow \frac{3}{2}x = \frac{3}{2_1} \times 42^{21} = 63^{\circ}$

$\Rightarrow \frac{4}{3}x = \frac{4}{3} \times 42^{14} = 56^{\circ}$

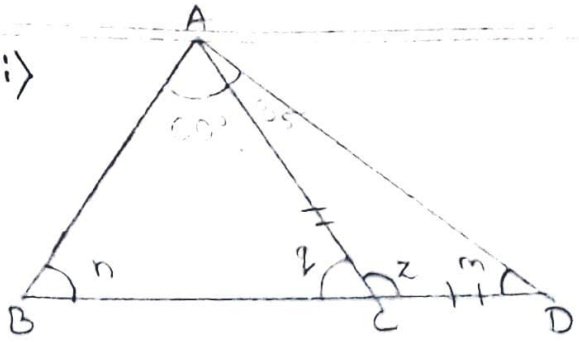
35) i) $x = 110^{\circ} - 30^{\circ}$
$= 70^{\circ}$

ii) $x = 120^{\circ} - 60^{\circ}$
$= 60^{\circ}$

iii) $x = 122^{\circ} - 35^{\circ}$
$= 87^{\circ}$

iv) $x = 135^{\circ} - 73^{\circ}$
$= 62^{\circ}$

(i) 36 i)



So, $\angle ADC = \angle CAD = 35°$

$\angle x = 180° - (35° + 35°)$

$= 180° - 70°$

$= 110°$

$\angle q = 180° - 110°$

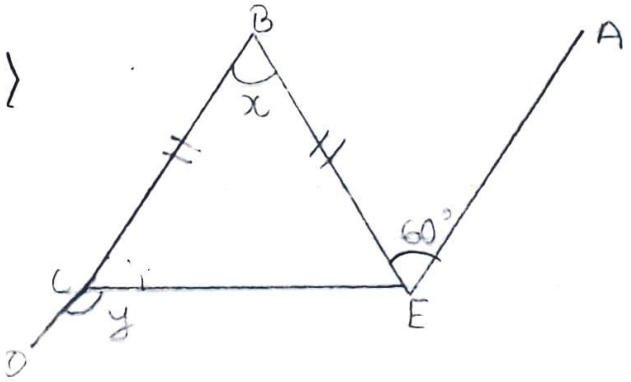
$= 70°$

So, $\angle n = 180° - (70° + 60°)$

$= 180° - 130°$

$= 50°$

ii)



$\angle BCE = \angle$

(c) Distance the car covers consuming 1 ℓ of petrol $= 31\frac{1}{4}$ km $= \frac{125}{4}$ km

Distance the car covers consuming $1\frac{3}{5}$ ℓ of petrol $= \frac{\cancel{125}^{25}}{4} \times \frac{\cancel{8}^{2}}{5} = 50$ km

11) i. $(7.5 \times 40.4) \div 25$

$= \frac{203}{1} \div 25$

$= 8.12$

ii) $2.1 \div (0.1 \times 0.1)$

$= 2.1 \div 0.01$

$= \frac{21}{\cancel{10}} \times \frac{\cancel{100}^{10}}{1} = 210$

12 i) $1.\overline{28} = 1 + \frac{28}{99}$

$= 1\frac{28}{99}$

ii) $5.\overline{234} = 5 + \frac{234}{999}$

$= 5\frac{234}{999}$