Sample Paper - 8

GENERAL INSTRUCTIONS

All questions are compulsory.
The question paper consist of 30 questions divided into four sections A, B, C and D. Section A comprises of 6 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each, Section C comprises of 10 questions of 3 marks each and Section D comprises of 8 questions of 4 marks each.
There is no overall choice.
Use of calculator is not allowed.

SECTION-A

(1 marks each)

1. Factorise 14pq + 35pqr.

2. Using distributive law, find the square of 43.

3. Add the following :

(a) $7a^2bc, -3abc^2, 3a^2bc, 2abc^2$

(b) $5x^2 - 3xy + 4y^2 - 9, 7y^2 + 5xy - 2x^2 + 13$

4. If the division $N \div 5$ leaves a remainder of 3, what might be the one's digit of N?

5. Express $3^{-5} \times 3^{-4}$ as a power of 3 with positive exponent.

6. Factorise: $3a^2b^3 - 27a^4b$.

SECTION-B

(2 marks each)

7. Find ten rational numbers between $\frac{3}{5}$ and $\frac{3}{4}$.

8. Can you find the square of the following numbers?

$7^2 =$ 4 9

$67^2 =$ 4 4 8 9

$667^2 =$ 4 4 4 8 8 9

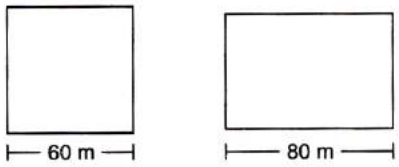
$6667^2 =$ 4 4 4 4 8 8 8 9

$66667^2 =$ 4 4 4 4 4 8 8 8 8 9

$666667^2 =$ 4 4 4 4 4 4 8 8 8 8 8 9

(a) 6666667^2 (b) 66666667^2

9. A square and a rectangular field with measurements as given in the figure have the same perimeter. Which field has a larger area?



10. Factorise the following :

(a) $4x^2 - 20x + 25$ (b) $x^4 - 256$

11. A colour TV is available for Rs. 26880 inclusive of VAT. If the original cost of the TV is Rs. 24,000, find the rate of VAT.

12. Convert the following ratio to percentages.

(a) 3 : 4 (b) 2 : 3

SECTION-C

(3 marks each)

13. Find using distributivity.

(a) $\left\{\frac{7}{5}\times\left(\frac{-3}{12}\right)\right\}+\left\{\frac{7}{5}\times\frac{5}{12}\right\}$

(b) $\left\{\frac{9}{16}\times\frac{4}{12}\right\}+\left\{\frac{9}{16}\times\frac{-3}{9}\right\}$

14. A batch of bottles were packed in 25 boxes with 12 bottles in each box. If the same batch is packed using 20 bottles in each box, how many boxes would be filled?

15. The cells of a bacteria doubles in every 20 min. A scientist begins with a single cell.

(a) How many cells will be there after

(i) 10 h? (ii) 25 h?

(a) What type of value is depicted by the cells of bacteria?

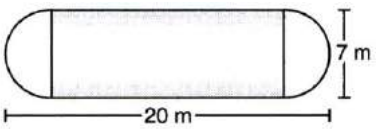
16. The perimeter of a rectangular swimming pool is 154 m. Its length is 2 m more than twice its breadth. What are the length and the breadth of the pool?

17. Make a line graph for the area of a square as per the given table.

Side (in cm)	1	2	3	4
Area (in cm^2)	1	4	9	16

It is a linear graph?

18. The shape of a garden is rectangular in the middle and semicircular at the ends as shown in the diagram. Find the area and perimeter of this garden. [Length of rectangle is $20-(3.5\ +\ 3.5)$ meters]



19. A shop gives 20% discount. What would the sale price of each of these be?

(a) A dress marked at Rs. 120

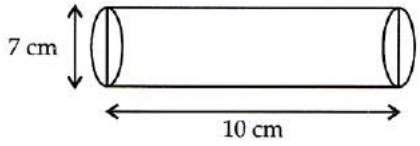
(b) A pair of shoes marked at Rs. 750

(c) A bag marked at Rs. 250

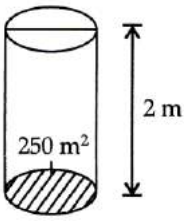
20. Show that: $(4pq+3q)^2-(4pq-3q)^2=48pq^2$

21. Find the volume of the following cylinder.

(a)



(b)



22. A three digit number 2 a 3 is added to the number 326 to give a three digit number 5b 9 which is divisible by 9. Find the value of $b - a$.

SECTION-D

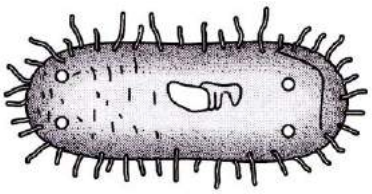
(4 marks each)

23. Using appropriate properties find

(a) $-\frac{2}{3}\times\frac{3}{5}+\frac{5}{2}-\frac{3}{5}\times\frac{1}{6}$

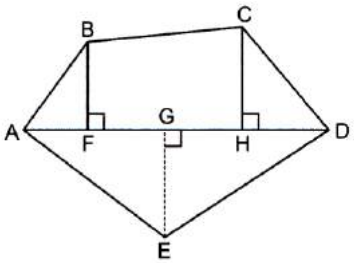
(b) $\frac{2}{5}\times\left(-\frac{3}{7}\right)-\frac{1}{6}\times\frac{3}{2}+\frac{1}{14}\times\frac{2}{5}$

24. A photograph of a bacteria enlarged 50/000 times attains a length of 5 cm as shown in the diagram, what is the actual length of the bacteria? If the photograph is enlarged 20/000 times only, what would be its enlarged length?



25. Lakshmi is a cashier in a bank. She has currency notes of denominations Rs. 100, Rs. 50 and Rs. 10, respectively. The ratio of the number of these notes is 2: 3: 5. The total cash with Lakshmi is Rs. 4,00,000. How many notes of each denomination does she have?

26. Polygon ABCDE is divided into parts as shown below :



Find its area, if AD = 8 cm, AH = 6 cm, AG = 4 cm, AF = 3 cm and perpendiculars BF = 2 cm, CH = 3 cm, EG = 2.5 cm.

27. Two regular polygon are such that the ratio of the measures of their interior angles is 4 : 3 and the ratio between their number of sides is 2 : 1. Find the number of sides of each polygon.

28. Using $(x+a)(x+b)=x^2+(a+b)x+ab$, find

(a) 103×104 (b) 5.1×5.2

(c) 103×98 (d) 9.7×9.8

29. Arif took a loan for Rs. 80,000 from a bank. If the rate of interest is 10% per annum. Find the difference in amounts he would be paying after $1\frac{1}{2}$ years if the interest is

(a) Compounded annually.

(b) Compounded half yearly.

30. Divide the given polynomial by the given monomial.

(a) $(5x^2-6x)\div 3x$ (b) $(3y^8-4y^6+5y^4)\div y^4$

(c) $8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3)\div 4x^2y^2z^2$

(d) $(x^3+2x^2+3x)\div 2x$

Solutions

Section 'A'

(1 mark each)

1. $14pq+35pqr$

$14pq=2\times7\times p\times q$

$35pqr=5\times7\times p\times q\times r$ ½

The common factor of the three terms are 7, p and q.

Therefore,

$14pq+35pqr=(2\times7\times p\times q)+(5\times7\times p\times q\times r)$

$=7\times p\times q(2+5r)$

$=7pq(2+5r)$ ½

2. 43 = 40 + 3

So, $43^2=(40+3)^2$

= (40 + 3) (40 + 3)

= 40(40 + 3) + 3(40 + 3) ½

$=40\times40+40\times3+3\times40+3\times3$

= 1600 +240+9

=1849

So, 43^2 = 1849 ½

3. (a) $7a^2bc+-3abc^2+3a^2bc+2abc^2$

$\Rightarrow7a^2bc-3abc^2+3a^2bc+2abc^2$

$\Rightarrow10a^2bc-abc^2$ ½

(b) $\left[5x^2-3xy+4y^2-9\right]+\left[7y^2+5xy-2x^2+13\right]$

$\Rightarrow5x^2-3xy+4y^2-9+7y^2+5xy-2x^2+13$

$\Rightarrow3x^2+11y^2+2xy+4$ ½

4. The one's digit, when divided by 5, must leave a remainder of 3. So, the one's digit must be either 3 or 8. **1**

5. $3^{-5}\times3^{-4}=3^{-9}=\frac{1}{3^9}$ **1**

6. $3a^2b^3-27a^4b=3a^2b(b^2-9a^2)$

$=3a^2b[(b)^2-(3a)^2]$ ½

$=3a^2b(b+3a)$(b−3a) ½

Section 'B'

(2 marks each)

7. LCM of 5 and 4 is 20

$\therefore \quad \frac{3}{5}\times\frac{4}{4}=\frac{12}{20}$ *and* $\frac{3}{4}\times\frac{5}{5}=\frac{15}{20}$

Again, $\frac{12}{20}\times\frac{8}{8}=\frac{96}{160}$ *and* $\frac{15}{20}\times\frac{8}{8}=\frac{120}{160}$ **1**

$\therefore$ Ten rational numbers between $\frac{3}{5}$ and $\frac{3}{4}$ are

$\frac{97}{160},\frac{98}{160},\frac{99}{160},\frac{100}{160},\frac{101}{160},\frac{102}{160},\frac{103}{160},\frac{104}{160},\frac{105}{160},\frac{106}{160}$.

1

8. (a) We know that, $67^2 = 4489$

So, $6666667^2 =$ 44444448888889 **1**

(b) $66666667^2 =$ 4444444488888889. **1**

9. According to condition,

Perimeter of square field = Perimeter of rectangular field

$\Rightarrow \quad 4\times side = 2(l+b)$

$\Rightarrow \quad 4\times 60 = 2(80+b)$

$\Rightarrow \quad \frac{240}{2} = 80+b$

$\Rightarrow \quad 120-80 = b$

$\Rightarrow \quad 40 = b$

$\therefore$ Breadth of rectangular field b = 40 m. **1**

Area of square field = $(\text{side})^2$

$= (60)^2 = 3600\,m^2$

Area of rectangular field = $I\times b$

$= 80\times 40 = 3200\ m^2$

$\therefore$ Square field has larger area. **1**

10. (a) $4x^2-20x+25=(2x)^2-2\times 2x\times 5+(5)^2$ ½

$=(2x-5)^2$ $[Since, a^2-2ab+b^2=(a-b)^2]$

$=(2x-5)(2x-5)$ ½

(b) $x^4-256=(x^2)^2-(16)^2$

$=(x^2+16)(x^2-16)$

$\left[using\ a^2-b^2=(a+b)(a-b)\right]$ ½

$=(x^2+16)(x^2-4^2)$

$=(x^2+16)(x+4)(x-4)$ ½

11. Let the rate of VAT = x%

Then 24000 + x% *of* 24000 = 26880

or $\frac{x}{100}\times 24000 = 26880-24000$ **1**

or $240x = 2880$

or $x=\frac{2880}{240}=12$ **1**

Therefore, Rate of VAT = 12%

12. (a) Given ratio $= 3:4 = \frac{3}{4}$

In percentage $= \frac{3}{4} \times 100 = 75\%$ **1**

(b) 2:3

Given ratio $= 2:3 = \frac{2}{3}$

In percentage $= \frac{2}{3} \times 100 = \frac{200}{3}$

$= 66\frac{2}{3}\%$ **1**

Section 'C'

13. (a) $\left\{\frac{7}{5} \times \left(\frac{-3}{12}\right)\right\} + \left\{\frac{7}{5} \times \frac{5}{12}\right\} = \frac{7}{5} \times \frac{-3}{12} + \frac{7}{5} \times \frac{5}{12}$

$= \frac{7}{5}\left\{\frac{-3}{12} + \frac{5}{12}\right\}$ (by distributivity)

$= \frac{7}{5}\left\{\frac{-3+5}{12}\right\}$

$= \frac{7}{5} \times \frac{2}{12} = \frac{14}{60} = \frac{7}{30}$ $1^{1/2}$

(b) $\left\{\frac{9}{16} \times \frac{4}{12}\right\} + \left\{\frac{9}{16} \times \frac{-3}{9}\right\} = \frac{9}{16} \times \frac{4}{12} + \frac{9}{16} \times \frac{-3}{9}$

$= \frac{9}{16}\left\{\frac{4}{12} + \left(\frac{-3}{9}\right)\right\}$ (by distributivity)

$= \frac{9}{16}\left\{\frac{4}{12} - \frac{3}{9}\right\} = \frac{9}{16}\left\{\frac{12-12}{36}\right\}$

$= \frac{9}{16} \times 0 = 0$ $1^{1/2}$

14. Let the boxes be x, when the same batch is packed using 20 bottles.
We have the following tables

No. of boxes	x	25
No. of bottles	20	12

This is a case of inverse proportion. **1**

$x \times 20 = 25 \times 12$

$\Rightarrow \quad x = \frac{25 \times 12}{20}$

$= 15$

Thus, 15 boxes would be filled, when the same batch is packed using 20 bottles. **2**

15. (a) (i) The cells in bacteria double in every 20 min.

$\because$ Number of cells in a bacteria after 20 min. = 2

$\therefore$ Number of cells in bacteria after 40 min.

$= 2 \times 2 = 2^2$

$\therefore$ Number of cells in bacteria after 1 hr

$= 2^2 \times 2 = 2^3$

Number of cells in bacteria after 1 hr 20 min.

$= 2^3 \times 2 = 2^4$

Number of cells in bacteria after 1 hr 40 min.

$= 2^4 \times 2 = 2^5$

Number of cells in bacteria after 2 hrs

$= 2^5 \times 2 = 2^6$

$= \left(2^3\right)^2$

$\therefore$ Number of cells in bacteria after 10 hrs

$= \left(2^3\right)^{10} = 2^{30}$ $1^{1/2}$

(ii) Number of cells in bacteria after 25 hrs

$= \left(2^3\right)^{25} = 2^{75}$ ½

(b) The value depicted by the cells of bacteria here is that it double itself after 20 min. in t hrs by $2^{3\times t}$.

16. Let the breadth of the pool be x m

Then the length of the pool = (2x + 2) m **1**

$2(2x+2+x) = 154$

or, $\frac{2(2x+2+x)}{2} = \frac{154}{2}$

[Dividing both sides by 2]

or, $3x + 2 = 77$

or, $3x+2-2 = 77-2$

[Subtracting 2 from both sides] **1**

or, $3x = 75$

or, $\frac{3x}{3} = \frac{75}{3}$

[Dividing both sides by 3]

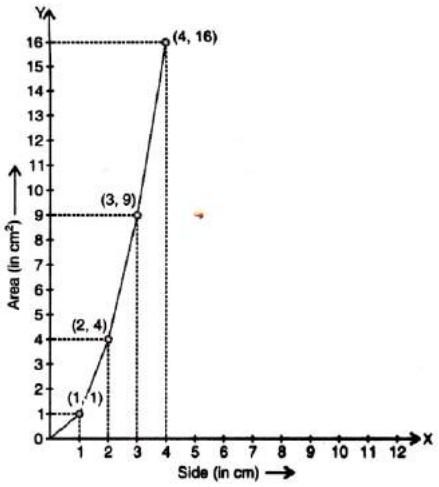
or, $x = 25$ m

Length of the pool

$= 2x+2 = 2\times 25+2 = 50+2 = 52m.$ **1**

Hence, the length and the breadth of the pool is 52 m and 25 m, respectively.

17.



3

Yes, it is a linear graph.

18. Length of rectangle $= 20-(3.5+3.5)$

$= 20-7 = 13m$

Breadth of rectangle = 7 m ½

The area of rectangular $= l \times b = 13 \times 7 = 91m^2$

The perimeter of rectangular part $= 2(l+b)$

$= 2(13+7) = 40m$ ½

Now, radius of each semicircle = 3.5 m

The area of both semicircular part $= \pi r^2$

$= = \frac{22}{7} \times 3.5 \times 3.5$

$= 38.5 m^2$ ½

The perimeter of both semicircular $= 2\pi r$

$= 2 \times \frac{22}{7} \times 3.5 = 22m$ ½

∴ The area of whole garden=The area of rectangular part

+ The area of semi-circular part

$= 91m^2 + 38.5m^2$

$= 129.5m^2$ ½

The perimeter of whole garden = The perimeter of rectangular part

+ The perimeter of semi-circular part

= 40 m + 22 m

= 62 m.

19. A shop gives 20% discount of every items

(a) Let us suppose that the price of dress is Rs. x

According to condition

Discount value = Discount % of marked price

= 20% of 120 {marked price = 120 Rs}

$= \frac{20}{100} \times 120$

Discount value =Rs. 24

Selling price (x) = Marked price − Discount value

$= \text{Rs.}120 - \text{Rs.}24$

$= \text{Rs.}96$

The Selling price of dress (x) = Rs 96

(b) Let us suppose that the selling price of a pair of shoes is Rs. x. According to condition,

Discount value = Discount % of marked price

=20% of 750 {marked price = 750 Rs.}.

$= \frac{20}{100} \times 750$

Discount value = Rs. 150

Selling price (x) = Marked price − Selling price

$= \text{Rs.}750 - \text{Rs.}\ 150$

The selling price of shoes (x) = Rs. 600 **1**

(c) Let us suppose that the selling price of bag be Rs. x

According to condition,

Discount value = Discount % of marked price

= 20% of 250 {marked price = 260 Rs.}

$= \frac{20}{100} \times 250$

Discount value = Rs. 50

Selling price (x) = Marked price − Discount value

$= \text{Rs.}250 - \text{Rs.}50 = \text{Rs.}200$

Selling price of bag (x) =Rs. 200

20. L.H.S $= (4pq + 3q)^2 - (4pq - 3q)^2$

$= (4pq)^2 + 2(4pq)(3q) + (3q)^2 - [(4pq)^2 - 2(4pq)(3q) + (3q)^2]$ **1**

$= 16p^2q^2 + 24pq^2 + 9q^2 - [16p^2q^2 - 24pq^2 + 9q^2]$

$= 16p^2q^2 + 24pq^2 + 9q^2 - 16p^2q^2 + 24pq^2 - 9q^2$ **1**

$= 48pq^2 = R.H.S$

21. (a) Radius of cylinder $= \frac{7}{2} = 3.5$ cm

Height of cylinder = 10 cm

$\therefore$ Volume of cylinder $= \pi r^2 h$

$= \frac{22}{7} \times 3.5 \times 3.5 \times 10$

= 385 cm^3. $1^{1/2}$

(b) Base area of cylinder = 250 m^3

Height of cylinder = Base area × height

= 250 × 2

=500m^3. $1^{1/2}$

22. Given,

$$\begin{array}{r} 2\ \ a\ \ 3 \\ +\ 3\ \ 2\ \ 6 \\ \hline 5\ \ b\ \ 9 \end{array}$$

Since, 5 b 9 is divisible by 9. **1**

So, (5 + b + 9) is divisible by 9. ½

So, clearly b = 4

and $(549 - 326 = 223)$ so, a =2 **1**

Thus, $b-a = 4-2$ ½

$=2$

Section 'D'

(4 marks each)

23. (a) $-\frac{2}{3}\times\frac{3}{5}+\frac{5}{2}-\frac{3}{5}\times\frac{1}{6}=-\frac{2}{3}\times\frac{3}{5}-\frac{3}{5}\times\frac{1}{6}+\frac{5}{2}$

(by commutanvity)

$=\frac{3}{5}\left(-\frac{2}{3}-\frac{1}{6}\right)+\frac{5}{2}$ (by distributivity)

$=\frac{3}{5}\left(\frac{-4-1}{6}\right)+\frac{5}{2}$

$=\frac{3}{5}\times\frac{-5}{6}+\frac{5}{2}$

$=\frac{-1}{2}+\frac{5}{2}=2$ **2**

(b) $\frac{2}{5}\times\left(\frac{-3}{7}\right)-\frac{1}{6}\times\frac{3}{2}+\frac{1}{14}\times\frac{2}{5}=\frac{2}{5}\times\left(\frac{-3}{7}\right)+\frac{1}{14}\times\frac{2}{5}-\frac{1}{6}\times\frac{3}{2}$

(by associativity)

$=\frac{2}{5}\times\left(\frac{-3}{7}+\frac{1}{14}\right)-\frac{1}{4}$ (by distributivity)

$=\frac{2}{5}\left(\frac{-6+1}{14}\right)-\frac{1}{4}$

$=\frac{2}{5}\times\frac{-5}{14}-\frac{1}{4}$

$=-\frac{1}{7}-\frac{1}{4}=\frac{-4-7}{28}=\frac{-11}{28}$ **2**

24. Let the photograph of bacteria be enlarged x times and length be y cm. As the bacteria enlarged increases, the length also increases in the same ratio. It is a case of direct proportion, i.e.,

$$\frac{x_1}{y_1}=\frac{x_2}{y_2}$$

x (times)	20,000	50,000
Y (cm)	X	5

We have, $\frac{20,000}{x}=\frac{50,000}{5}$

$\Rightarrow$ $x=\frac{20,000\times 5}{50,000}$

= 2 cm

Thus, enlarged length is 2 cm **1**

and, actual length of the bacteria

$$= \frac{length}{enl\arg ed\ \ time}$$

$$= \frac{5}{50,000} = 10^{-4}\ \text{cm}$$ **1**

25. Let number of notes be 2x, 3x and 5x.

According to question,

$2x \times 100 + 3x \times 50 + 5x \times 10 = 400000$

or, $200x + 150x + 50x = 400000$

or, $400x = 400000$

or, $x = \frac{400000}{400}$

[Dividing both sides by 400]

or, x = 1000 **2**

Hence, Number of denomination of Rs. 100 notes $= 2 \times 1000 = 2000$

Number of denomination of Rs. 50 notes

$= 3 \times 1000 = 3000$

Number of denomination of Rs.10 notes

$= 5 \times 1000 = 5000$

Hence, required denominations of notes of Rs. 100, Rs. 50 and Rs. 10 are 2000, 3000 and 5000, respectively. **2**

26. Given, polygon ABCDE is divided into four parts, so it is clear from given figure that

Area of polygon ABCDE = Area of ΔAFB = Area of trapezium FBCH + Area of ΔCHD + Area of ΔADE ...(i)

Also, AD = 8 cm, AH = 6 cm, AG = 4 cm, AF = 3 cm, BF = 2 cm, CH = 3 cm and EG = 2.5 cm

Now, are of

$\Delta AFB = \frac{1}{2} \times AF \times BF = \frac{1}{2} \times 3 \times 2 = 3cm^2$ **2**

Area of trapezium FBCH

$= \frac{1}{2} \times \text{FH} \times (BF + CH) = \frac{1}{2} \times 3 \times (2+3)$

$[\because FH = AH - AF = 6 - 3 = cm]$

$= \frac{1}{2} \times 3 \times 5 = \frac{1}{2} = 7.5cm^2$ **1**

Area of

$\Delta CHD = \frac{1}{2} \times HD \times CH = \frac{1}{2} \times (AD - AH) \times CH$

$[\because HD = AD - AH]$

$= \frac{1}{2} \times (8-6) \times 3 = \frac{1}{2} \times 2 \times 3 = 3cm^2$ **1**

Now, area of $\Delta ADE = \frac{1}{2} \times AD \times GE$

$= \frac{1}{2} \times 8 \times 2.5$

$= 4 \times 2.5 = 10cm^2$

On putting all these values is Eq. (i), we get

Area of polygon ABCDE $= (3+7.5+3+10) = 23.5$ cm^2

Hence, area of polygon ABCDE is 23.5 cm^2. **1**

27. Let 2n and n be the number of sides of the regular polygon.

$\therefore$ Their interior angles are

$\left[\frac{2(2n)-4}{2n}\times 90\right]^\circ$ and $\left[\frac{2n-4}{n}\times 90\right]^\circ$

1

Since the ratio of the interior angles is 4:3.

$$\therefore \quad \frac{\left[\frac{2(2n)-4}{2n}\times 90\right]}{\left[\frac{(2n-4)}{n}\times 90\right]} = \frac{4}{3}$$

$$\Rightarrow \quad \frac{n}{2n}\times\frac{[2(2n)-4]}{[2n-4]} = \frac{4}{3} \quad \textbf{1}$$

$$\Rightarrow \quad \frac{1}{2}\times\frac{4n-4}{2n-4} = \frac{4}{3}$$

$$\Rightarrow \quad \frac{1}{2}\times\frac{4(n-1)}{2(n-2)} = \frac{4}{3} \Rightarrow \frac{n-1}{n-2} = \frac{4}{3}$$

$$\Rightarrow \quad 3(n-1) = 5(n-2) \Rightarrow 3n-3 = 4n-8 \quad \textbf{1}$$

$$\Rightarrow \quad 3n-4n = -8+3$$

$$\Rightarrow \quad -n = -5 \Rightarrow n = 5$$

$$\therefore \quad 2n = 2\times 5 = 10 \quad \textbf{1}$$

Thus, the number of sides of polygon are 10 and 5 respectively.

28. (a) $103\times 104 = (100+3)\ (100+4)$

$= (100)^2 + (3+4)\times 100 + 3\times 4$

= 10000 + 700 + 12

= 10712

(b) $5.1\times 5.2 = (5+0.1)\ (5+0.2)$

$= (5)^2 + (0.1+0.2)\times 5 + (0.1\times 0.2)$

$= 25 + 0.3\times 5 + 0.02$

$= 25 + 1.5 + 0.02$

= 26.52 **1**

(c) $103\times 98 = (100+3)\ (100-2)$

$= (100)^2 + \{3+(-2)\}\times 100 + (3\times(-2))$

$= 10000 + (3-2)\times 100 - 6$

$= 10000 + 1\times 100 - 6$

$= 10000 + 100 - 6$

= 10094 1

(d) $9.7\times 9.8 = (10-0.3)\ (10-0.2)$

$= (10)^2 + (-0.3 + -0.2)\times 10 + \{(-0.3)\ (-0.2)\}$

$= 100 + (-0.3-0.2) - 10\times\{+0.06\}$

$=100-0.5\times10-0.06$

$=100-5+0.06$

$=95.06$

29. (a) Compounded annually

P =Rs.80000,T= $1\frac{1}{2}$ year

R = 10% of p.a. and 5% of half years

$$A=P\left(1+\frac{R}{100}\right)^n$$

$$=80000\left(1+\frac{10}{100}\right)^1\left(1+\frac{5}{100}\right)$$

$$=80000\left(\frac{11}{10}\right)\left(\frac{21}{20}\right)$$

A=Rs. 92400 **2**

(b) Compounded half yearly.

P = Rs. 80,000, R = 10%

$=\frac{10}{2}=5\%$

n = $1\frac{1}{2}$ year $=\frac{3}{2}\times32=3$ half years

$$A=P\left(1+\frac{R}{100}\right)^n$$

$$=80,000\left(1+\frac{5}{100}\right)^3$$

$$A=80000\left(\frac{21}{20}\right)^3$$

$$=80,000\times\frac{21}{20}\times\frac{21}{20}\times\frac{21}{20}$$

A =Rs. 92610

Difference in amounts

=Rs. 92610 – Rs.92400 **2**

=Rs.210

30. (a) $(5x^2-6x)\div 3x=\frac{5x^2-6x}{3x}$

$=\frac{5x^2}{3x}-\frac{6x}{3x}$

$=\frac{5}{3}x-2$ **1**

(b) $(3y^8-4y^6+5y^4)\div y^4-\frac{3y^8}{y^4}-\frac{4y^6}{y^4}+\frac{5y^4}{y^4}$

$=3y^4-4y^2+5$

(c) $8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3)\div 4x^2y^2z^2$

$=\frac{8(x^3y^2z^2+x^2y^3z^2+x^2y^2z^3)}{4x^2y^2z^2}$ **1**

$=\frac{8x^3y^2z^2}{4x^2y^2z^2}+\frac{8x^2y^3z^2}{4x^2y^2z^2}+\frac{8x^2y^2z^3}{4x^2y^2z^2}$

$=2x+2y+2z=2(x+y+z)$

1

(d) $(x^3+2x^2+3x)\div 2x=\frac{x^3+2x^2+3x}{2x}$

$=\frac{x^3}{2x}+\frac{2x^2}{2x}+\frac{3x}{2x}$

$=\frac{x^2}{2}+x+\frac{3}{2}$

$=\frac{1}{2}(x^2+2x+3)$ **1**