Sample Paper - 9

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 mark each)

1. What will be the number of zeros in the square of the following number?
(a) 60 (b) 400

2. If the division $N \div 5$ leaves a remainder of 1 what might be the one's digit of N?

3. Simplify: $(2^5 \div 2^8) \times 2^{-7}$

4. Factorise : $l^2m^2n - lm^2n^2 - l^2mn^2$

5. In the formula $F + V - E = 2$, on putting F = 40 and E = 60, find the value of V.

6. Find the product of $-4p$ and 7pq.

SECTION-B

(2 marks each)

7. The walls and ceiling of a room are to be plastered. The length, breadth and height of the room are 4.5 m, 3 m, and 350 cm respectively. Find the cost of plastering at the rate of Rs. 8 per m^2 .

8. Simplify: $\frac{5}{3}+\frac{11}{2}+\frac{-9}{4}+\frac{-8}{3}+\frac{-7}{2}$

9. Using prime factorisation, find the cube root of 5832.

10. Factorise the following :
(a) $x^2 + 9x + 20$

(b) $p^2 - 13p - 30$

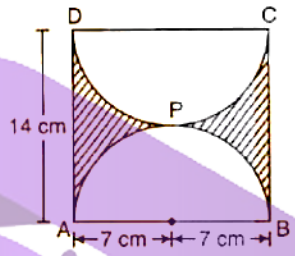
11. Simplify: $(2x+5)^2 - (2x-5)^2$.

12. A man got 10% increase in his salary. If his new salary is Rs. 1, 54,000, find his original salary.

SECTION-C

(3 marks each)

13. (a) If ABCD is a square of side 14 cm and APB and DPC are semi-circles, then find the area of shaded region as shown in the figure.



(b) If area of a trapezium is 44 cm^2, whose parallel sides are 10 cm and 12 cm and height is 4 cm, then verify that Area of trapezium $= \frac{1}{2}$ [sum of parallel sides] $\times$ height.

14. Find five rational number between.

(a) $\frac{2}{3}$ *and* $\frac{4}{5}$ (b) $\frac{-3}{2}$ *and* $\frac{5}{3}$

(c) $\frac{1}{4}$ *and* $\frac{1}{2}$

15. A factory requires 42 machines to produce a given number of articles in 63 days. How many machines would be required to produce the same number of articles in 54 days?

16. If numerator is 2 less than denominator of a rational number and when 1 is subtracted from numerator and denominator both, the rational number in its simplest from is $\frac{1}{2}$. What is the rational number?

17. Find the value of x for which

$$\left(\frac{4}{9}\right)^4 \times \left(\frac{4}{9}\right)^{-7} = \left(\frac{4}{9}\right)^{2x-1}$$

18. Two given angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram.

19. Daniel is painting the walls & wiling of a cuboidal hall with length, breadth and height of 15 m, 10 m and 7 m respectively. From each can of paint 100 m2 of area is painted. How many cans of paint will she need to paint the room?

20. Rahul walks 12 m north from his house and turns west to walk 35 m to reach his friend's house. While returning, he walks diagonally from his friend's house to reach back to his house. What distance did he walk while returning?

21. Fabina borrows Rs. 12500 at 12% per annum for 3 years at simple interest and Radha borrows the same amount for the same time period at 10% per annum, compounded annually. Who pays more interest and by how much?

22. (a) Subtract $4a - 7ab + 3b + 12$ from

$12a - 9ab + 5b - 3$

(b) Subtract $3xy + 5yz - 7zx$ from

$5xy - 2yz - 2zx + 10xyz$

(c) Subtract $4p^2q - 3pq + 5pq^2 - 8p + 7q - 10$

From $18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$

SECTION-D

(4 marks each)

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

24. The students of Anju's class sold posters to raise money. Anju wanted to create a ratio for finding the amount of money her class would make for different numbers of posters sold. She knew they could raise Rs. 250 for every 60 posters sold.

(a) How much money would Anju's class make for selling 102 posters?

(b) Could Anju's class raise exactly T 2,000? If so, how many posters would they need to sell?

25. (a) The sum of the digits of a two-digit number is 15. If the number formed by reversing the digits is less than the original number by 27, find the original number.

(b) Verify that $x = 2$ is a solution of the equation

$2(x+1) = 3(x+1) - 3.$

26. How many bricks of size 22 cm $\times 10$ cm $\times 7$ cm are required to construct a wall 11 m long, 3.5 m high and 40 cm thick, if the cement and sand used in the construction occupy $\left(\frac{1}{10}\right)^{th}$ part of the wall?

27. Show that:

(a) $(3x+7)^2 - 84x = (3x-7)^2$

(b) $(9p-5q)^2 + 180\,pq = (9p+5q)^2$

(c) $\left(\frac{4}{3}m - \frac{3}{4}n\right)^2 + 2mn = \frac{16}{9}m^2 + \frac{9}{16}n^2$

(d) $(4pq+3q)^2 - (4pq-3q)^2 = 48pq^2$

28. Shoes of the following brands are sold in Nov. 2007 at a shoe store.

Construct a pie chart for the data.

Brand	Number of pair of shoes sold
A	130
B	120
C	90
D	40
E	20

29. Find the compound interest on Rs. 48,000 for one year at 8% per annum when compounded half yearly.

30. Factorise the expressions and divide them as directed.

(a) $(y^2+7y+10) \div (y+5)$

(b) $(m^2-14m-32) \div (m+2)$

(c) $(5p^2-25p+20) \div (p-1)$

(d) $4yz(z^2+6z-16) \div 2y(z+8)$

Solutions

Section 'A'

(1 marks each)

1. (a) 60 = 3600 The number of zeros in the square of 60 is 2. ½

(b) 400 = 160000 The number of zeros in the square of 400 is 4.

½

2. If remainder = 1, then the one's digit of 'N' must be either 1 or 6.

$(2^5 \div 2^8) \times 2^{-7} = \left(\frac{2^5}{2^8}\right) \times 2^{-7}$ 1

3. $= (2^{-3}) \times 2^{-7} = 2^{-10}$ 1

4. $l^2m^2n - lm^2n^2 - l^2mn^2 = lmn\ [lm - mn - ln]$ 1

5. Given, F + V – E = 2

Here, F = 40 and E = 60 then

40 + V – 60 = 2

V – 20 = 2

V = 2 + 20

V = 22

1

6. We have,

$-4p \times 7pq = (-4 \times 7) \times p \times pq$

½

$= -28p^2q$ ½

Section 'B'

(2 marks each)

7. Here, l = 4.5 m, b = 3 m, h = 350 cm = 3.5 m.

Total surface area of room (cuboid) $= 2[lb + bh + hl]$

$= 2[4.5 \times 3 + 3 \times 3.5 \times + 3.5 \times 4.5]$

$= 2[13.5 + 10.5 + 15.75]$

$= 2[39.75]$

$= 79.5\ m^2$ 1

Required area for plastering = 79.5 – Area of base (surface)

$= 79.5 - 13.5$

$= 66\ m^2$ ½

Cost of plastering $= 66 \times 8$

$=$ Rs. 528 ½

8. $\frac{5}{3}+\frac{11}{2}+\frac{-9}{4}+\frac{-8}{3}+\frac{-7}{2}=\left(\frac{5}{3}+\frac{-8}{3}\right)+\left(\frac{11}{2}+\frac{-7}{2}\right)+\left(\frac{-9}{4}\right)=\frac{5+(-8)}{3}+\frac{11+(-7)}{2}+\frac{-9}{4}$

$=-\frac{3}{3}+\frac{4}{2}+\frac{-9}{4}$

$=1+\frac{(-9)}{4}$

$=\frac{1\times4+(-9)}{4}=\frac{4-9}{4}$

$=\frac{-5}{4}.$ 1

9. The prime factorisation of 5832 is

2	5832
2	2916
2	1458
3	729
3	243
3	81
3	27
3	9
3	3
1	

1

$5832 = 2\times2\times2\times3\times3\times3\times3\times3\times3$

Therefore, $\sqrt[3]{5832} = \sqrt[3]{2\times2\times2\times3\times3\times3\times3\times3\times3}$

$= 2\times3\times3$

$= 18$ 1

10. (a) $x^2+9x+20 = x^2+(5+4)x+20$

$= x^2+5x+4x+20$ ½

$= x(x+5)+4(x+5)$

$=(x+5)(x+4)$ ½

(b) $p^2-13p-30 = p^2-(15-2)p-30$

$= p^2-15p+2p-30$ ½

$= p(p-15)+2(p-15)$

$=(p-15)(p+2)$ ½

11. $(2x+5)^2-(2x-5)^2=\left[(2x)^2+(5)^2+2\times2x\times5\right]-$

$\left[(2x)^2+(5)^2-2\times 2x\times 5\right]$ 1

$=\left[4x^2+25+20x\right]-\left[4x^2+25-20x\right]$

$= 4x^2+25+20x- 4x^2-25+20x$ 1

$=20x+20x$

$= 40x$ 1

12. New salary is Rs. 154,000 after increase 10%

Let suppose that original salary = Rs x

Then increasing value of 10% = 10% of x

Increase value of 10% $=\frac{10}{100}\times x=\frac{x}{10}$

New increase salary = Increase value of 10% + Original salary

1

$154000 =\frac{x}{10}+x$

$\Rightarrow \quad 154000 =\frac{11x}{10}$

$\Rightarrow \quad \frac{154000\times 10}{11} =x$

$\Rightarrow \quad x=1,40,000$

The original salary = Rs.1, 40,000

Section 'C'

(3 marks each)

13. (a) Area of the shaded region = Area of square ABCD – Area of 2 semi circles

1

$=14^2-2\times\frac{1}{2}\times\pi\times 7^2$

$=14\times 14-\frac{22}{7}\times 7\times 7$

$=(196-154)=42\ cm^2$ 1

(b) Since, area of a trapezium = 44 cm^2

Parallel sides = 10 cm and 12 cm

and h = 4 cm

Then, L.H.S. = 44 cm^2

Area of trapezium $=\frac{1}{2}\times$ (sum of parallel sides) × height

and R.H.S. $=\frac{1}{2}\times(10+12)\times 4$

$=\frac{1}{2}\times$ 22 × 4

= 44 cm^2 1

Hence, L.H.S. = R.H.S. = 44 cm^2

14. (a) $\frac{2}{3}$ and $\frac{4}{5}$

LCM of 3 and 5 is 15

$\therefore \quad \frac{2}{3}\times\frac{5}{5}=\frac{10}{15}$ and $\frac{4}{5}\times\frac{3}{3}=\frac{12}{15}$

Again, $\frac{10}{15}\times\frac{4}{4}=\frac{40}{60}$ and $\frac{12}{15}\times\frac{4}{4}=\frac{48}{60}$

$\therefore$ Five rational numbers between $\frac{2}{3}$ and $\frac{4}{5}$ are

$\frac{41}{60},\frac{42}{60},\frac{43}{60},\frac{44}{60},\frac{45}{60}$. 1

(b) $\frac{-3}{2}$ and $\frac{5}{3}$

LCM of 2 and 3 is 6

$\therefore \quad \frac{-3}{2}\times\frac{3}{3}=\frac{-9}{6}$ and $\frac{5}{3}\times\frac{2}{2}=\frac{10}{6}$

$\therefore$ Five rational number between $\frac{-3}{2}$ and $\frac{5}{3}$ are

$\frac{-8}{6},\frac{-7}{6},0,\frac{1}{6},\frac{2}{6}$. 1

(c) $\frac{1}{4}$ and $\frac{1}{2}$ LCM of 4 and 2 is 4

$\frac{1}{4}\times\frac{1}{1}=\frac{1}{4}$ and $\frac{1}{2}\times\frac{2}{2}=\frac{2}{4}$

Again, $\frac{1}{4}\times\frac{8}{8}=\frac{8}{32}$ and $\frac{2}{4}\times\frac{8}{8}=\frac{16}{32}$

$\therefore$ Five rational numbers between $\frac{1}{4}$ and $\frac{1}{2}$ are

$\frac{9}{32},\frac{10}{32},\frac{11}{32},\frac{12}{32},\frac{13}{32}$. 1

15. Let the number of machines be x.

Machine	42	x
Days	63	54

1

As no. of days decrease no. of machines increase. Hence, this is a case of inverse proportion.

So, no. of machines increase $x\times54=42\times63$

$\Rightarrow \quad x=\frac{42\times63}{54}=49$ 2

Thus, 49 machines would be required.

16. Let the denominator be x, the numerator $=x-2$

$\therefore$ Fraction $=\frac{x-2}{x}$ ½

According to given condition,

$\frac{x-2-1}{x-1}=\frac{1}{2}$ ½

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

$2x-6=x-1$ ½

$2x-x=6-1$

$x = 5$ ½

$\therefore$ Rational number $=\frac{x-2}{x}=\frac{5-2}{5}=\frac{3}{5}$ 1

17. Since, $\left(\frac{4}{9}\right)^{4}\times\left(\frac{4}{9}\right)^{-7}=\left(\frac{4}{9}\right)^{2x-1}$

or $\left(\frac{4}{9}\right)^{4+(-7)}=\left(\frac{4}{9}\right)^{2x-1}$ 1

or $\left(\frac{4}{3}\right)^{-3}=\left(\frac{4}{9}\right)^{2x-1}$ 1

By comparing with powers then,

$-3=2x-1$

$2x=-3+1$

or $2x=-2$

or $x=-\frac{2}{2}=-1$

Hence, $x=-1$ 1

18. Let ABCD be a parallelogram such that adjacent angles are equal.

$\angle A=\angle B$ 1

Since, $\angle A+\angle B=180°$

$\Rightarrow \quad 2\angle A=180°$

$\therefore \quad \angle A=\angle B=\frac{180°}{2}=90°$

Since, opposite angles of a parallelogram are equal. 1

$\therefore \quad \angle A=\angle C=90°$

and $\angle B=\angle D=90°$

Thus, $\angle A=90°, \angle B=90°,$

$\angle C=90°$ and $\angle D=90°$ 1

19. l = 15, m, b = 10 m and h = 7m

Total surface area of room = 2 (lb + bh + hl)

$=2(15\times10+10\times7+7\times15)$

$=2(150+70+105)$

$=650\ m^2$ 1

Area of floor $= l\times b$

$=15\times10=150\ m^2$

Area painted by Daniel $=650-150$

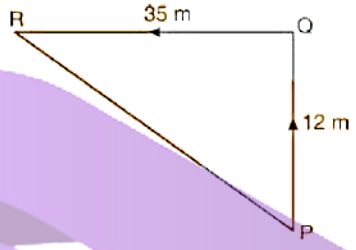
$= 500\ m^2$ 1

$\therefore$ $100\ m^2$ area painted by 1 can

$\therefore$ $500\ m^2$ area painted $= \frac{1}{100} \times 500$

$= 5$ cans.

20. Applying Pythagoras's theorem, in ΔPQR, we have



1

$PR^2 = PQ^2 + QR^2$ 1

$= (12)^2 + (35)^2$

$= 144 + 1225$

$= 1369 \Rightarrow PR = \sqrt{1369}$

PR = 37 m 1

21. For Fabina, P = Rs. 12500, R = 12% p.a.

T = 3 years

$S.I. = \frac{P \times R \times T}{100}$

$= \frac{12500 \times 12 \times 3}{100} = Rs.4500$ 1

For Radha, P = Rs. 12500, R = 10% p.a.

n = 3 years

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

$12500\left(1 + \frac{10}{100}\right)^3$

$12500\left(\frac{11}{10}\right)^3$

$= 12500 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} = Rs.16,673.50$ 1

$C.P. = A - P$

$= 16637.50 - 12500$

= Rs. 4137.5

Fabina pay more interest, she pay more

$= 4500 - 4137.50$

= Rs 362.50 1

22. (a) $12a - 9ab + 5b - 3$

$4a - 7ab + 3b + 12$

$\underline{(-)\ (+)\ (-)\ (-)\ \text{subtracting}}$
$8a - 2ab + 2b - 15$ 1

(b) $5xy - 2yz - 2zx + 10xyz$

$3xy + 5yz - 7zx$

$\underline{(-)\ (-)\ (+)\ \text{subtracting}}$
$2xy - 7yz + 5zx + 10xyz$ 1

(c) $18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$

$-10 - 8p + 7q - 3pq + 5pq^2 + 4p^2q$

$\underline{(+)\ (+)\ (-)\ (+)\ (-)\ (-)}$
$28 + 5p - 18q + 8pq - 7pq^2 + p^2q$ 1

Therefore, $p^2q - 7pq^2 + 8pq - 18q + 5p + 28$

Section 'D'

(4 marks each)

23. LCM of 5 and 4 is 20

$\therefore \quad \frac{3}{5} \times \frac{4}{4} = \frac{12}{20}$ and $\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}$ 1

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

$\frac{103}{160}, \frac{104}{160}, \frac{105}{160}, \frac{106}{160} \frac{103}{160}, \frac{104}{160}, \frac{105}{160}, \frac{106}{160}$ 2

24. Here, Anju's class raised money for every 60 posters.

(a) Let x be the money.

Money Raised	250	x
Number of posters sold	60	102

Clearly, number of poster will increase, money raised will also increased

1

$\therefore \quad \frac{250}{60} = \frac{x}{102}$

$x = \frac{102 \times 250}{60} = 425$ 1

Money raised by 102 poster is Rs 425.

(b) No, class could not raise exactly Rs. 2000.

Let the number of poster Anju's class need to sell be n.

Money Raised (in Rs.)	250	2000
No of posters sold	60	n

$\therefore \quad \frac{250}{60} = \frac{2000}{n}$ 1

$n = \frac{2000 \times 60}{250} = 480$

So, required number of posters are 480. 1

25. (a) Let the unit place = x

Then the tens place $= (15 - x)$

Therefore, original number $= 10(15 - x) + x$ 1

$= (150 - 9x)$

By reversing the digits, we get

New number $= 10x + (15 - x)$

$= 9x + 15$

According to question,

(original number) – (new number) = 27

1

$(150 - 9x) - (9x + 15) = 27$

or $135 - 18x = 27$

or $18x = 135 - 27$

or $18x = 108$

or $x = \frac{108}{18}$

or $x = 6$

Hence, original number $= 150 - 9x$

$= 150 - 9 \times 6$

$= 150 - 54 = 96$ ½

(b) Verification: Since $2(x+1) = 3(x+1) - 3$

The putting x = 2, then

LHS = $2(x + 1)$

$= 2\ (2 + 1)$

$= 2 \times 3 = 6$ ½

and RHS $= 3(x+1) - 3$

$= 3(2+1) - 3$

$= 3 \times 3 - 3$

$= 9 - 3 = 6$ 1

Hence, LHS = RHS = 6 [Hence, Verified]

26. Volume of a brick = 22 cm × 10 cm × 7 cm

$= 1540\ cm^3$ 1

Dimensions of wall

l = 11 m, b = 3.5 m,

h = 40 cm = 0.4 m

Volume of wall $= 11 \times 3.5 \times 0.4$

$= 15.4\ m^3$

$= 15.4 \times 1000000\ cm^3$

$= 15400000\ cm^3$ 1

Since, cement and sand occupy $\left(\frac{1}{10}\right)^{th}$ part of the wall

So, new volume $= 15400000 \times \frac{1}{10}$

$= 1540000\ cm^3$

$No.\ of\ bricks = \frac{1540000}{1540}$

$= 1000$

1

27. (a) $(3x+7)^2 - 84x = (3x-7)^2$

Taking L.H.S. $= (3x+7)^2 - 84x$

$= \{(3x)^2 + 2(3x) \times 7 + (7)^2\} - 84x$

$= 9x^2 + 42x + 49 - 84x$

$= 9x^2 + 49 - 42x$

$= (3x)^2 - (2 \times 3 \times 7)x + (7)^2$

$= 9x^2 - 42x + 49$

$= (3x-7)^2 = R.H.S$ 1

(b) $(9p-5q)^2 + 180pq = (9p+5q)^2$

Taking L.H.S. $= (9p-5q)^2 + 180pq$

$= \{(9p)^2 - 2 \times 9p \times 5q + (5q)^2 + 180\,pq$

$= 81p^2 - 90pq + 25q^2 + 180pq$

$= 81p^2 + 25q^2 + 90pq$

$= (9p)^2 + (5q)^2 + (2 \times 9 \times 5)\,pq$

$= 9p^2 + 25q^2 + 90pq$

$= (9p+5q)^2 = R.H.S$ 1

(c) $\left(\frac{4}{3}m - \frac{3}{4}n\right)^2 + 2mn = \frac{16}{9}m^2 + \frac{9}{16}n^2$

Taking L.H.S. $= \left(\frac{4}{3}m - \frac{3}{4}n\right)^2 + 2mn$

$= \left\{\left(\frac{4}{3}m^2\right) - 2\left(\frac{4}{3}m\right)\left(\frac{3}{4}n\right) + \left(\frac{3}{4}n\right)^2\right\} + 2mn$

$= \frac{16}{9}m^2 - 2mn + \frac{9}{16}n^2 + 2mn$

$= \frac{16}{9}m^2 + \frac{9}{16}n^2 - 2mn + 2mn$

$= \frac{16}{9}m^2 + \frac{9}{16}n^2$ = R.H.S.

1

(d) $(4pq+3q)^2 - (4pq-3q)^2 = 48pq^2$

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

$= \{(4pq)^2 + 2(4pq)(3q) + (3q)^2$

$-\{(4pq)^2 - 2(4pq)3q + (3q)^2\}$

$= 16p^2q^2 + 24pq^2 + 9q^2 - (16p^2q^2 - 24pq^2 + 9q^2)$

$= (16-16)p^2q^2 + (24+24)\,pq^2 + (9-q)\,q^2$

$= 0 + 48pq^2 + 0$

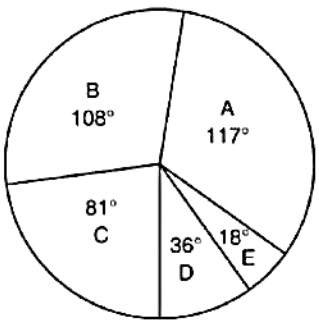
$= 48\,pq^2$ = R.H.S 1

Total number of shoes = 400

28. We find the central angle for each sector

Brand	Number of shoes	In fraction	central angle
A	130	$\frac{130}{400} = \frac{13}{40}$	$\frac{13}{40} \times 360° = 117°$
B	120	$\frac{120}{400} = \frac{3}{10}$	$\frac{3}{10} \times 360° = 108°$
C	90	$\frac{90}{400} = \frac{9}{40}$	$\frac{9}{40} \times 360° = 81°$
D	40	$\frac{40}{400} = \frac{1}{10}$	$\frac{1}{10} \times 360° = 36°$
E	20	$\frac{20}{400} = \frac{1}{20}$	$\frac{1}{20} \times 360° = 18°$

The pie chart is



29. Principal (P) = Rs. 48,000

Rate (R) = 8% p.a.

Time (n) = 1 year

Interest is compounded half yearly

$A = P\left(1+\frac{R}{200}\right)^{2n}$

$=48000\left(1+\frac{8}{200}\right)^{2}$

$=48000\times\frac{26}{25}\times\frac{26}{25}$

$= 76.8\times26\times26$

= Rs. 51,916.80

Therefore, Compound Interest $= A - P$

= Rs. $(519,16.80-48,000)$

= Rs. 3,916.80

1

30. (a) $(y^2+7y+10)\div(y+5)$

Dividend $= y^2+7y+10$

$=y^2+(5+2)y+10$

$=y^2+5y+2y+10$

$=y(y+5)+2(y+5)$

$=(y+5)(y+2)$

Thus, $(y^2+7y+10)\div(y+5)=\frac{(y+5)(y+2)}{(y+5)}=y+2$

(b) $(m^2-14m-32)\div(m+2)$

Dividend = m2 – 14m – 32

$=m^2-(16-2)\,m-32$

$= m^2-16m+2m-32$

$= m(m-16)+2(m-16)$

$=(m-16)\ (m+2)$

Thus, $(m^2-14m-32)\div(m+2)$

$=\frac{(m-16)(m+2)}{(m+2)}$

$= m - 16$ 1

(c) $(5p^2-25p+20)\div(p-1)$

Dividend $= 5p^2-25p+20$

$=5p^2-(20+5)p+20$

$= 5p^2-20p-5p+20$

$= 5p(p-4) - 5(p-4)$

$= (p-4)(5p-5)$

$= 5(p-4)(p-1)$

Thus, $(5p^2 - 25p + 20) \div (p-1)$

$= \frac{5(p-4)(p-1)}{(p-1)}$

$= 5(p-4)$

(d) $4yz(z^2 + 6z - 16) \div 2y(z+8)$

Dividend $= 4yz(z^2 + 6z - 16)$

$= 4yz[z^2 + (8-2)z - 16]$

$= 4yz[z^2 + 8z - 2z - 16]$

$= 4yz = [z(z+8) - 2(z+8)]$

$= 4yz(z+8)(z-2)$

Thus, $4yz(z^2 + 6z - 16) \div 2y(z+8)$

$= \frac{4yz(z+8)(z-2)}{2y(z+8)}$

$= 2z(z-2)$