



Maths by Ajay Rana Sir

Number System

Q. Find Remainder of the following questions:

•
$$\frac{14 \times 15}{13}$$

•
$$\frac{14 \times 15 \times 16}{13}$$

•
$$\frac{14 \times 15 \times 16 \times 17}{13}$$

•
$$\frac{10 \times 11 \times 12}{13}$$

•
$$\frac{9 \times 10 \times 11 \times 12}{13}$$

Q. Find Remainder : (a) $\frac{25^{25}}{26}$

(b) $\frac{25+25^{25}}{26}$

(c) $\frac{67^{67}+67}{66}$

(d) $\frac{2^{47}}{7}$

(e) $\frac{2^{52}}{9}$

Q. Find Remainder :



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(a) $\frac{51^{203}}{7}$

(b) $\frac{32^{32}}{7}$

(c) $\frac{1001 \times 1002 \times 1003 \times 1004}{9}$

(d) $\frac{1001 \times 1002 \times 1003 \times 1004}{15}$

(e) $\frac{2348 \times (2372)^2 \times (2390)^3}{23}$

(f) $\frac{973 \times 975 \times 977 \times 979}{50}$

Q. Find Remainder when $1!+2!+3!+4!+5!+\dots+10,000!$ divided by 5 ?



Q. Find Remainder when $1!+2!+3!+4!+5!+\dots+10,000!$ divided by 7 ?

Q. Find Remainder :



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$$(a) \frac{15^{41} + 27^{41}}{21}$$

$$(b) \frac{17^{41} + 29^{41}}{23}$$

Q. Find Remainder :



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$$\begin{array}{r} 45678910 \\ \hline 6 \end{array}$$

Q. Find divisors of the following :

(a) 30

(b) 100

(c) 360

(d) 720

Q. Find unit digit of :



(a) $43 \times 45 \times 47 \times 49 \times 53 \times 55$

(b) $(2453)^{2016}$

(c) $(2459)^{2416}$

(d) $(4578)^{4578} + (3432)^{3432}$

(e) $(3457)^{2017}$

(f) $(3457)^{2018}$

(g) $(3458)^{2019}$

Q. Find Unit digit :

(a) $(3459)^{3459} + (1235)^{1234}$

(b) $(4567)^{4563} \times (1234)^{1253}$

(c) $(4579)^{4519} - (1232)^{1232}$

(d) $(4579)^{4518} - (1232)^{1232}$

(e) $(4567)^{2419} - (1238)^{1238}$

SURDS & INDICES

Q. Evaluate:

$$(a) \ x = \sqrt{7 \sqrt{7 \sqrt{7 \sqrt{7 \sqrt{7 \dots \infty}}}}}$$

$$(b) \ x = \sqrt{7 \sqrt{7 \sqrt{7 \sqrt{7}}}}$$

$$(b) \ x = \sqrt{5 \sqrt{5 \sqrt{5 \sqrt{5}}}}$$

Q. Evaluate :

$$(a) x = \sqrt{6 + \sqrt{6 + \sqrt{6} \dots \dots \infty}}$$

$$(b) X = \sqrt{6 - \sqrt{6 - \sqrt{6} \dots \dots \infty}}$$

$$(c) X = \sqrt{72 + \sqrt{72 + \sqrt{72} \dots \dots \infty}}$$

Q. Find relation between x and y if $x = \sqrt{8 - \sqrt{8 - \sqrt{8} \dots \dots \infty}}$ and

$$y = \sqrt{8 + \sqrt{8 + \sqrt{8} \dots \dots \infty}}$$



Q. $\sqrt{4 + \sqrt{44 + \sqrt{10000}}}$

Q. $\frac{\sqrt[3]{8}}{\sqrt{16}} + \frac{\sqrt{100}}{\sqrt{49}} \times \sqrt[3]{125}$

Q. $1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{5}}}$

$$\text{Q. } 999\frac{995}{999} \times 999$$

$$\text{Q. } 999\frac{98}{99} \times 99$$

$$\text{Q. } 999\frac{1}{7} + 999\frac{2}{7} + 999\frac{3}{7} + 999\frac{4}{7} + 999\frac{5}{7} + 999\frac{6}{7}$$

Q.
$$\frac{0.08 \times 0.08 \times 0.08 + 0.02 \times 0.02 \times 0.02}{0.08 \times 0.08 - 0.0016 + 0.02 \times 0.02}$$

Q.
$$\frac{0.05 \times 0.05 \times 0.05 - 0.04 \times 0.04 \times 0.04}{0.05 \times 0.05 + 0.002 + 0.04 \times 0.04}$$

Q.
$$\sqrt{\frac{0.49}{0.25}} + \sqrt{\frac{0.81}{0.36}}$$

Q. Which among the following is greatest :

$$\frac{4}{5}, \frac{5}{6}, \frac{6}{7}$$

Q. Arrange them in descending order :

$$\frac{3}{4}, \frac{4}{5}, \frac{5}{6}$$

Q. Find :



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(a) $(25)^{1+\frac{1}{2}+\frac{1}{4}+\frac{1}{16}+\dots\dots\dots} \infty$

(b) $(12)^{1+\frac{1}{2}+\frac{1}{4}+\frac{1}{16}+\dots\dots\dots} \infty$

Q. How many numbers between 100 & 200 are divisible by 4 ?



100 और 200 के मध्य ऐसी कितनी संख्याये है जो 4 से विभाज्य है ?

Q. Find sum and average of the numbers between 100 & 200 which are divisible by 4 ?

100 और 200 के मध्य उन सभी संख्याओं का योग और औसत ज्ञात कीजिये जो 4 से विभाज्य है ?

Q. Find the numbers between 100 & 300 which are divisible by 4 or 6 ?

100 और 300 के मध्य ऐसी कितनी संख्याएँ हैं जो 4 या 6 से विभाज्य हैं