MATHS HOLIDAY HOMEWORK

01. None of the above
02. 10^{100}
03. The identity for addition of rational numbers.
04. One (1) is the identity for multiplication of rational numbers.
05. $3\times3\times3\times7\times7 = 3^3 \times 7^2$, 7.
06. $\frac{27}{18} \times 100 = \frac{2700}{18} \frac{30}{2} = 15\%$.
07. 0
08. $\frac{5A}{\times A} = \frac{57}{\times 7} = [A = 7]$
$\frac{}{399} \quad \frac{}{399}$
09. ~~24×~~ $\frac{30 \times 24}{12} 2 = 60$.
10. commutative law of addition
11. ~~Impact~~ $\frac{33}{48}, \frac{34}{48}, \frac{35}{48}$.
12. $(12)^{-2} \times 4^3 =$
13. $\frac{11}{2}$ m = 12 equal pieces. $= \frac{(\frac{11}{2})}{12} = \frac{11}{12\times2} = \frac{11}{24}$ m.
14. LCM = 280, $\frac{8}{7} \times \frac{40}{40} = \frac{320}{280}$

$\frac{-9}{8} \times \frac{35}{35} = \frac{-135}{280}$

$\frac{-3}{2} \times \frac{140}{140} = \frac{-420}{280}$

$\frac{0}{1} \times \frac{280}{280} = \frac{0}{280}$

$\frac{2}{5} \times \frac{56}{56} = \frac{112}{280}$

$\frac{-420}{80}, \frac{315}{280}, \frac{0}{280}, \frac{112}{280}, \frac{320}{280}$

$\frac{-3}{2}, \frac{-9}{8}, 0, \frac{2}{5}, \frac{8}{7}$.

15. Additive inverse = 7
Multiplicative inverse = $-\frac{1}{7}$

$7 - \frac{1}{7} = \frac{48}{7}$

16 Perimeter of the triangle = Sum of three sides
$= 8y^2 - 9y + 4$

Sum of 2 sides = $3y^2 - 5y + 4y^2 + 12$
$= 7y^2 - 5y + 12$

$\therefore (8y^2 - 9y + 4 - 7y^2 - 5y + 12)$
$= y^2 - 14y - 8.$

17. Work done by A in one day = $\frac{1}{20}$

Work done by B in one day = $\frac{1}{15}$
Then, the work done by A & B in one day = $\frac{1}{20} + \frac{1}{15} = \frac{7}{60}$

If A & B does work together in 6 days = $\frac{7}{60} \times 6 = \frac{7}{10}$.

The work left = $1 - \frac{7}{10} = \frac{3}{10}$.

Then B can do $\frac{3}{10}$ work = $\frac{3}{10} \times \frac{15}{1} = \frac{9}{2} = 4\frac{1}{2}$ days.

18 i) P = ₹630, I = ₹126, T = 4 years
$R = \frac{100 \times I}{P \times T} = \frac{100 \times 126}{630 \times 24} = \frac{100}{20} = 5\%$.

ii) Let P = ₹100
∴ Amount = $2 \times$ ₹100 = ₹200.
Interest = A - P
₹200 - ₹100 = ₹100.
$T = 6\frac{1}{4}$ years = $\frac{25}{4}$ years

$R = \frac{100 \times I}{P \times T}$
$= \frac{100 \times 100}{100} \times \frac{4}{25} = 16.$

19) P = ₹7500
R = 8% pa
t = 2 years.

Simple Interest = $\frac{PRT}{100} = \frac{7500 \times 8 \times 2}{100} = ₹1200$

Interest for the first year = $\frac{7500 \times 8 \times 1}{100} = ₹600$

Amount at the end of first year = P + S.I
= ₹7500 + ₹600 = ₹8100.

Principal for the 2nd year = ₹8100

Interest for the 2nd year = $\frac{8100 \times 8 \times 1}{100} = ₹648$.

Total CI for 2 years = ₹600 + ₹648 = ₹1248.

Difference between CI and SI for 2 years:
₹1248 - ₹1200 = ₹48

20) Let the price of the sugar today be 100
Then it's price tomorrow will be ₹125.
So, to bring back the price to normal it should be decreased
$\frac{125-100}{125} \times 100 = 20\%$. $\frac{25}{125} \times 4 = 20\%$.

22) Amout Mohan paid for the article = ₹912
for peter: SP = 912, LOSS = 5%, CP = $\frac{100}{(100-\text{LOSS}\%)} \times$ S.P
$= \frac{100}{(100-5)} \times ₹912 = ₹\frac{100 \times 912}{95}$ 9.6
$= 960$

for John: SP = ₹960, Profit = 20%, CP = $\frac{100}{(100+\text{PROFIT\%})} \times SP$

$= \frac{100}{100+20} \times ₹960.$

$= \frac{100}{120} \times 960$

$= 100 \times 8 = ₹800$

Hence John paid for the article = ₹800

23. Given,

Rajesh sold the scooter to Rahim at 8% loss.

Rahim sold the scooter to Prem at 5% gain.

CP of prem = ₹14,490.

SP of prem = $\frac{100}{(100+\text{gain\%})} \times SP = \frac{100}{100+5} \times 14,490$

$= \frac{100}{105} \times 14,490 = 13,800$

Now CP of Rahim will be SP of Rajesh that is 13800.

CP of Rajesh: $= \frac{100}{100-8} \times 13800 = 15000$

* SP of the scooter for Rahim: 14,490
CP of the scooter for Rahim: 13,800.

* SP of the scooter for Rajesh = $\frac{13800}{15000}$
CP " " " " " "

24. $\frac{53}{63}, \frac{107}{126}, \frac{6}{7}, \frac{109}{126}, \frac{37}{42}$

25) i) $\sqrt{7.84} + \sqrt{78400}$

$= \frac{\sqrt{784}}{100} + \sqrt{784 \times 100}$

$= \frac{28}{10} + 28 \times 10$

$= 2.8 + 280$

$= 282.8$

ii) $\sqrt{0.0784} + \sqrt{0.000784}$

$= \sqrt{\frac{784}{10^4}} + \sqrt{\frac{784}{10^6}}$

$= \frac{28}{10^2} + \frac{28}{10^3}$

$= 0.28 + 0.028$

$= 0.308$

26) SP of bicycle = ₹637.

Loss % = 9%.

$CP = \frac{100}{100 - \text{Loss}\%} \times SP = \frac{100}{91} \times 637 = ₹700.$

CP = ₹700 & profit % = 5%.

$SP = \frac{100\% + \text{Gain}\%}{100} \times C.P$

$= \frac{100 + 5}{100} \times 700 = \frac{105}{100} \times 700 = ₹735.$

28. 3 men = 6 boys

1 man = 2 boys

4 men and 12 boys = 4 + 6 men = 10 men.

If 3 men can finish a work in 20 days.

10 men can finish the work in $\frac{20 \times 3}{10} = 6$ days

29. If 5 persons are maintained for 20 days with ₹2480.
Then 1 person at $= \frac{24.80}{20 \times 5} = \frac{2480}{100} = ₹24.80$

So, the maintenance of 8 persons $= 24.80 \times 8$
$= 198.40$/day

So, the number days ₹6944 can be maintained for 8 members will be:

$\frac{6944}{198.40} = 35$ days

30. $\{-1\}, \{10\}$