VIII Homework-16 COMPARING QUANTITIES

1) If 16% of $x = 40$, then $x =$ ____
2) The decimal number by which the C.P has to be multiplied to get the S.P, if the profit is 20% is ____
3) The discount is always calculated on the ____ price
4) The compound interest on a certain sum, for a given period at a certain rate of interest per annum, when compounded annually is less than when compounded semi annually.
5) Find the percentage increase in the price of an article, if it increase from ₹72 to ₹81.
6) If the selling price is ₹578 and discount = 15%, then find the marked price.
7) Find the compound interest on the sum of ₹8000 at 10% p.a compounded annually for 2 years
8) A bought a book for ₹600 and sold it to B at a profit of 10%. B in turn sold it to C at a loss of 10%. The price at which C bought the book was:
(a) ₹550 (b) ₹540 (c) ₹594 (d) ₹726
9) The Cost price of a shirt is ₹1200. When it is sold at a discount of 10%, a loss of 4% is incurred. Find the marked price of the shirt?
(a) ₹1208 (b) ₹1152 (c) ₹1280 (d) ₹1028
10) Seema invested an amount of ₹16,000 for two years at compound interest and received an amount of ₹17640 on maturity. What is the rate of interest p.a?
(a) 8% (b) 4% (c) 6% (d) 5%
11) The C.I on a certain sum at 5% p.a for 2 years is ₹328. The S.I on that sum at the same rate and for the same period will be:
(a) ₹320 (b) ₹322 (c) ₹325 (d) ₹326
12) The time in which ₹1800 amounts to ₹2178 at 10% p.a compounded annually is
(a) 3 years (b) 2 years (c) 4 years (d) 1½ years
13) If the amount is $2\frac{1}{4}$ times the sum after 2 years at C.I, the rate of interest per annum is
(a) 25% (b) 30% (c) 40% (d) 50%

14) What percent of $\sqrt{0.0169}$ is 0.0117 ?
(a) 0.9 (b) 0.1 (c) 0.09 (d) 9

15) What percent is 3% of 5% ?
(a) 15% (b) 30% (c) 50% (d) 60%

VIII **Homework – 16 (Comparing Quantities – Answers)**

1) $16 \times \frac{1}{100} \times x = 40$

$\therefore x = \frac{40 \times 100}{16} = 250$

2) $S.P = \frac{100 + \text{Profit}\%}{100} \times C.P$

$= \frac{100 + 20}{100} \times C.P$

$= \frac{120}{100} \times C.P$

$\therefore S.P = 1.2 \times C.P$

Thus, the required decimal number is 1.2

3) Marked price.

4) True, interest compounded annually < interest compounded Semi-annually

5) original value = 72

new value = 81

$\%\ \text{increase} = \frac{\text{new value} - \text{original value}}{\text{original value}} \times 100\%$

$= \frac{81 - 72}{72} \times 100$

$= \frac{9}{72} \times 100 = \frac{100}{8} = 12.5\%$

6) S.P (Bill amount) = ₹578

$M.P = \frac{100}{100 - \text{discount}\%} \times S.P$

$= \frac{100}{100 - 15} \times 578$

$= \frac{100}{85} \times 578 = 20 \times 34 = ₹680$

7) $P = ₹8000$

$R = 10\%$

$n = 2$ years

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

$$= 8000\left(1+\frac{10}{100}\right)^2$$

$$= 8000 \times \frac{11}{10} \times \frac{11}{10}$$

$$= \text{Rs } 9,680$$

$$C.I = A - P = 9680 - 8000 = \text{Rs } 1,680$$

8) C.P = ₹600

Profit % = 10%

$$S.P = \frac{100 + \text{profit}\%}{100} \times C.P$$

$$= \frac{(100+10)}{100} \times 600$$

$$= 110 \times 6 = \text{Rs } 660$$

Now, C.P = Rs 660

loss % = 10%

$$S.P = \frac{100 - \text{loss}\%}{100} \times C.P$$

$$= \frac{100-10}{100} \times 660$$

$$= \frac{90 \times 66}{10} = ₹594 \quad (c)$$

9) C.P = ₹1200

loss % = 4%

$$S.P = \frac{100 - \text{loss}\%}{100} \times C.P$$

$$= \frac{100-4}{100} \times 1200 = 96 \times 12 = \text{Rs } 1,152$$

$$M.P = \frac{100}{100 - \text{discount}\%} \times S.P$$

$$= \frac{100}{100-10} \times 1152 = \frac{100}{90} \times \overset{128}{\cancel{1152}} = \text{Rs } 1,280 \quad (c)$$

10) $P = ₹16,000$

$n = 2$ years

Amount $= ₹17,640$

$R = ?$

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

$$17640 = 16000\left(1+\frac{R}{100}\right)^2$$

$$\left(1+\frac{R}{100}\right)^2 = \frac{17640}{16000} = \frac{441}{400} = \left(\frac{21}{20}\right)^2$$

$$\therefore 1+\frac{R}{100} = \frac{21}{20}$$

$$\frac{R}{100} = \frac{21}{20} - 1$$

$$\frac{R}{100} = \frac{1}{20}$$

$$R = \frac{100}{20} = 5\% \text{ (d)}$$

11) $R = 5\%$

$n = 2$ years

C.I $= 328$

$$\text{Amount} = P + I = P + 328$$

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

$$P + 328 = P\left(1+\frac{5}{100}\right)^2$$

$$P + 328 = P\left(\frac{21}{20}\right)^2$$

$$P + 328 = P \times \frac{441}{400}$$

$$400P + 131200 = 441P$$

$$131200 = 441P - 400P$$

$$41P = 131200$$

$$P = \frac{131200}{41} = 3200$$

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

$$= \frac{3200 \times 5 \times 2}{100}$$

$$= Rs\ 320 \text{ (a)}$$

12) $P = Rs\ 1800$

Amount $= Rs\ 2178$

$R = 10\%$

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

$$2178 = 1800\left(1+\frac{10}{100}\right)^n$$

$$\frac{2178}{1800} = \left(\frac{11}{10}\right)^n$$

$$\left(\frac{11}{10}\right)^n = \frac{121}{100} = \left(\frac{11}{10}\right)^2$$

$\therefore n = 2$ years (b)

13) Let the principal amount be x.

Then Amount $= 2\frac{1}{4} \times x = \frac{9}{4}x$

$n = 2$ years

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

$$\frac{9}{4}x = x\left(1+\frac{R}{100}\right)^2$$

$$\left(\frac{3}{2}\right)^2 = \left(1+\frac{R}{100}\right)^2$$

$$\therefore 1+\frac{R}{100} = \frac{3}{2}$$

$$\frac{R}{100} = \frac{3}{2} - 1 = \frac{1}{2}$$

$$R = \frac{100}{2} = 50\%$$ (d)

14) $x\%$ of $\sqrt{0.0169} = 0.0117$

$$\frac{x}{100} \times 0.13 = 0.0117$$

$$x = \frac{0.0117 \times 100}{0.13} = \frac{1.17}{0.13} = \frac{117}{13}$$

$$= 9$$ (d)

15) $\frac{3\%}{5\%} \times 100\%$

$= \frac{3}{5} \times 100 = 60\%$ (d)