


UNIT 2:

Percentages


Level 1

1 If A is 25% more than B , B is less than A by


- A 15% B 16.7% C $17\frac{1}{2}\%$  D 20% E 25%

2 In a school, $\frac{1}{6}$ of the students go to school by MTR, $\frac{1}{3}$ by bus and the rest on foot.


What percentage of students go to school on foot?

- A $33\frac{1}{3}\%$ B $41\frac{2}{3}\%$ C 50% D $58\frac{1}{3}\%$  E $83\frac{1}{3}\%$


3 When a number is increased by 20%, its value increases by 4. The original value of the number is

- A 5 B 8  C 16 D 20 E 24


4 In a class, 60% are boys and 40% are girls. 70% of the boys and 50% of the girls wear glasses. Find the percentage of students in the class wearing glasses.

- A 62% B 60% C 58% D 55% E 50% 


5 $x\%$ of 30 is the same as $(x+10)\%$ of 20. $x =$

- A 10 B 20 C 30 D 50 E 60 


6 After a discount of 15% is given, the selling price of an article is \$170. Find the marked price of the article.

- A \$314.5 B \$200  C \$195.5 D \$147.8 E \$144.5

7 A radio costing \$200 is sold at \$250. Find the percentage profit.

- A 18% B 20% C 25% D 40% E 50% 

8 The cost of an article is \$400 and is marked \$500. After a discount of $x\%$ is given, a loss of 10% is made on selling the article. $x =$

- A 11.25 B 12.5 C 18 D 20  E 28

9 Find the interest on $\$P$ at $r\%$ p.a. for n years, compounded quarterly.

A $\$P(1+r\%)^n$

D $\$P[(1+r\%)^{4n} - 1]$

B $\$P(1+r\%)^{4n}$

E $\$P\left[\left(1+\frac{r\%}{4}\right)^{4n} - 1\right]$

C $\$P\left[\left(1+\frac{r\%}{4}\right)^n - 1\right]$



10 $\$10\,000$ is deposited at $r\%$ p.a. for 5 years. A simple interest of $\$1\,500$ is received.

$r =$

A 3

B 5

C 15

D 0.03

E 0.15



11 The height of a tree increases by 20% every year. If the height is 2 m now, what was its height 3 years ago (correct to the nearest cm)?

A 102 cm

B 116 cm

C 120 cm

D 125 cm

E 167 cm



12 The consumption of rice in city H decreases by 5% every year. If the consumption in this year is $20\,000$ kg, the consumption 2 years later correct to the nearest kg is

A 22 050 kg

D 18 050 kg

B 18 182 kg

E 18 000 kg

C 18 141 kg



Level 2

13 The population of a city increases by 5% in the first year, decreases by 5% in the second year, increases by 5% in the third year, and decreases by 5% in the fourth year. The percentage change in population in this period is

A 5% (increase)

D 0.5% (decrease)

B 0.5% (increase)

E 5% (decrease)

C 0%



14 In a class of 40 students, $x\%$ of the students are boys. If 8 boys go out and 8 girls come in, then $x\%$ of the students are girls. $x =$

A 40








B 42

C 50


D 58

E 60



- 15** The cost of producing an article is \$50, in which \$30 is for material and \$20 is for labour charge. If the cost of material decreases by 20% and the labour charge increases by 20%,
- A** the total cost decreases by 4%.
B the total cost decreases by $3\frac{1}{3}\%$. 
C the total cost remains unchanged.
D the total cost increases by $3\frac{1}{3}\%$.
E the total cost increases by 4%.
- 16** Mr Leung bought 100 apples. The cost can be covered if 60 of them are sold. Find the percentage profit if all apples are sold.
- A** 80% **B** $66\frac{2}{3}\%$ **C** 60% **D** 40% **E** $33\frac{1}{3}\%$

- 17** A book costs \$50 and is marked \$70. Find the maximum percentage discount to be given so that it is not a loss when the book is sold.
- A** $11\frac{3}{7}\%$ **B** 15% **C** $28\frac{4}{7}\%$ **D** 35% **E** 40%

- 18** Find the difference between simple and compound interest (compounded yearly) if \$10 000 is deposited at 6% p.a. for 3 years.
- A** \$0 **B** \$10.16 **C** \$60 **D** \$110.16 **E** \$210.16

- 19** What simple interest rate will give the same interest as \$10 000 being compounded half-yearly at 8% p.a. for 2 years?
- A** 1.7% p.a. **B** 5.8% p.a. **C** 8.5% p.a. **D** 11.7% p.a. **E** 17% p.a.

- 20** The value of a machine depreciates by 20% every 2 years. If its price is \$5 000 now, its price 6 years later is
- A** \$1 310.72 **B** \$1 500 **C** \$2 000 **D** \$2 560 **E** \$2 893.52

- 21** The sides of a square are increased by 25%. Its area is increased by
- A** 12.5% **B** 25% **C** 37.5% **D** 50% **E** 56.25%


22 When the base of a triangle increases by 50% and the height decreases by $x\%$, the area increases by 10%. $x =$

- A $33\frac{1}{3}$ B $26\frac{2}{3}$  C 30 D $33\frac{1}{3}$ E 40

23 In a 5 000 m race, Peter's speed is 20% faster than John's, the time Peter needs to complete the race is less than that of John by

- A $16\frac{2}{3}\%$ B 18% C 20% D 25% E $83\frac{1}{3}\%$

