Chapter 5 *Basic Concepts of Percentages*

Multiple Choice Section

1. Which of these figures have shaded area covering 62.5% of the overall area?

A.   B.

C.   D.
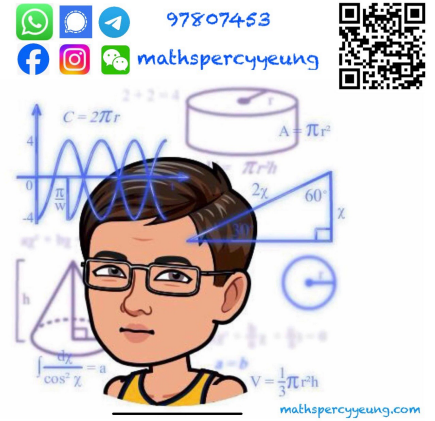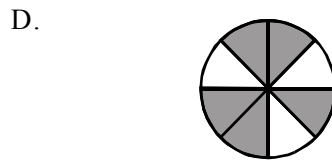
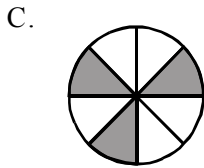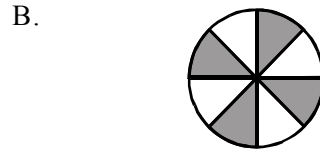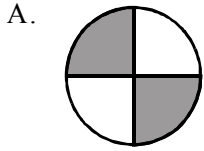**2.** Find the percentage of shaded area in the following figure.
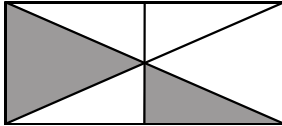
A. 37.5%   B. $33\frac{1}{3}$%   C. 16.7%   D. 25%

3. Calculate 98.6% − 37.3%.

A. 6.13%   B. 61.3%   C. 613%   D. 0.613%

4. Calculate 1.75 + 25%.

A. 2   B. 20   C. 26.75   D. 2.675

5. Calculate 0.84 × (45% − 17%).

A. 23.52%   B. 300   C. 30   D. 3

6. Calculate 8 × (1 + 30%).

A. 10 400%   B. 1 040%   C. 104%   D. 10.4%

7. Which of the following must be correct?

I.   2.82% + 1.19% = 4%   II.   2.82% − 1.19% = 1.73%

III. 28% × 35% = 9.8%   IV. 28% ÷ 35% = 80%

A. III and IV   B. I and II   C. I and IV   D. II and III

8. How much is 15% of 380?

    A. 437   B. 5.7   C. 57   D. 323

9. 5% of *m* is 19, find the value of *m*.

    A. 380   B. 0.95   C. 3.8   D. 18.05

10. What percentage is 6 minutes in an hour?

    A. 6%   B. 10%   C. 25%   D. 60%

11. 15% of the students in a class have travelled overseas, that means, for every 100 students, 15 of them have travelled overseas. If so, out of 20 students, how many of them have travelled overseas?

    A. 3   B. 15   C. 5   D. 10

12. Mike has $8 400 income. He spends 12% of his income to buy an MD Walkman. How much is the MD Walkman?

    A. $1 008   B. $908   C. $1 108   D. $1 000

13. Sam originally has $250, but he has used 28% of the money to buy some books. How much money has Sam left?

    A. $18   B. $70   C. $347.2   D. $180

14. In F.1, 7 students failed in a mathematics test, which is 2.8% of the students in F.1. Find the number of students in F.1.

    A. 25   B. 250   C. 196   D. 20

15. Joshua weighs 60 kg, which is 60% of the weight of his dad. What is the difference in their weights in kg?

    A. 30 kg   B. 35 kg   C. 40 kg   D. 25 kg

16. Number A is 4 times number B, then how many percent is number B less than number A?

    A. 25%   B. 50%   C. 75%   D. $33\frac{1}{3}\%$

17. If electricity fee has risen from $125 to $135, find the percentage increase in electricity fee.

    A. 92.6%   B. 10%   C. 7.4%   D. 8%

18. If 64 cm is increased by $12\frac{1}{2}\%$, find the new length.

    A. 88 cm   B. 78 cm   C. 82 cm   D. 72 cm

19. The price of a watch was $80 last month. If the price has risen by 30% this month, find the price of the watch this month.

    A. $56   B. $104   C. $24   D. $24.3

20. If the speed of a car is 120 km/h when travelling on level ground, and 25% slower when travelling uphill, find its speed when travelling uphill.

    A. 150 km/h   B. 30 km/h   C. 90 km/h   D. 95 km/h

21. If a number is decreased by 20% and then increased by 25%, what percentage is the final value in compared with the original one?

    A. 100%   B. 105%   C. 95%   D. 5%

22. A textile has shrunk by 10% after washing. If the length of the textile is 6.3 m after washing, what was the original length?

    A. 63 m   B. 6.36 m   C. 6.93 m   D. 7 m

23. The length of each side of a square is 20 cm. If the length of each side is increased by 5%, find the percentage increase in the area of the square.

    A. $20\frac{1}{4}\%$ B. $5\frac{1}{4}\%$ C. $15\frac{1}{4}\%$ D. $10\frac{1}{4}\%$

24. A pair of shoes which is marked at $120 is sold at 25% off. Find the selling price.

    A. $85   B. $90   C. $100   D. $110

25. The marked price of a flat is $1 800 000, and it is sold at a discount of 15%. Find the discount.

    A. $1 530 000   B. $1 565 200   C. $270 000   D. $27 000

26. In a cake shop, one can buy 7 cakes and get 1 extra cake for free. Find the discount percent.

    A. 10%   B. 7.5%   C. 12.5%   D. 20%

27. Gary has bought a toy at a discount of 25%, and has saved $88. Find the marked price of the toy.

    A. $110   B. $117.3   C. $3 520   D. $352

28. A store is on sale, and all goods are sold at a discount of 5%. If a person pays by cash, a further discount of 5% would be awarded. Find the actual discount percent for cash payment.

A. 9.75%   B.   90%   C.   10%   D.   90.25%

29. Winnie bought a camera at $1 200. Then, she sold it to Denise at a discount of 15%. Denise then sold the camera to Ada with a loss of $250. How much did Ada pay for the camera?

A. $870   B. $770   C. $970   D. $1 070

30. A box of chocolates was sold at $136, with a loss of 20%. Find the cost of that box of chocolates.

A. $170   B. $113.3   C. $163.2   D. $680

31. A bookstore manager has purchased some books at the price of $120 each, and has sold them at $186 each. Find the profit percent.

A. 155%   B. $35\frac{15}{31}$%   C. $64\frac{16}{31}$%   D.   55%

32. A rice dealer has bought 4 000 kg of rice at $0.5 per kg. He donates 100 kg of the rice to charity. Then, he sells 3 400 kg of the rice at $0.8 per kg, and the rest at $0.2 per kg. What is the profit percent?

A. 41%   B.   29.08%   C.   141%   D.   42%

33. A shop manager has spent 65% of his cash to buy product A, 12% of his cash to buy product B, and the rest of his cash to buy product C. It is known that he has spent $336 more on product A than on product C. If $1500 is received by selling all the products, find the profit percent.

A. 22.92%   B.   87.5%   C.   12.5%   D.   14.29%

34. If a T-shirt is sold at $800, there will be a loss of $100. How much should the T-shirt be sold in order to gain a 10% profit?

A. $980   B. $960   C. $990   D. $910

35. A shop manager has bought 320 glasses at $2 112, in which 5% of them are broken. The rest are sold at $9.2 each. What is the profit/loss?

A. Loss $640   B.   Loss $684.8   C.   Profit $684.8   D.   Profit $1 964.8

Section A(1)

1. Using percentages to represent the following values.

   (a) $\dfrac{13}{50}$
   (b) $\dfrac{1}{4}$
   (c) 0.4
   (d) 0.287

2. Evaluate the following and give your answers in percentages.

   (a) 25% + 47%
   (b) 83% − 36%
   (c) 2 + 5%
   (d) 0.6 − 17%

3. Evaluate the following and give your answers in percentages.

   (a) 44% × 50%
   (b) 7 × 40%
   (c) 4 ÷ 25%
   (d) 90 ÷ 30%

4. **(a)** How much is 35% of $260?
   (b) How much is 46% of 560 g?

5. **(a)** 40% of x is 300, find x.
   (b) 63% of y is 21, find y.

6. There are 40 students in a classroom and 25 of them are boys. Find the percentage of boys in the classroom.

7. There are 20 bottles of milk. 5 of them are expired. Find the percentage of the expired milk to the total number of bottles of milk.

8. Mr. Chan earns $12 000 per month. After spending on rent, he has $8 000 left. Find the percentage of the spending on rent to his monthly salary.

9. In a company, 15% of the employees are working in the account department. If there are 45 employees in the account department, find the total number of employees in the company.

10. The height of a plant increases from 54 cm to 67.5 cm. Find the percentage increase in height.

11. There is 300L of petrol in a car. After it has travelled for some distance, there are only 180L left. Find the percentage decrease of petrol.

12. John gets $10 pocket money everyday. Starting from tomorrow, he will get 35% more. How much will he get tomorrow?

13. Miss Chan spent $500 on cosmetic last month. If she spends 15% more in this month, how much does she spend on cosmetic this month?

14. Mary has 30 candies. She eats 10%, how many candies are left?

15. There are 40 students in F.1F. There are 5% of the students apply for sick leave and 5% of them apply for causal leave. How many students attend the class today?

16. A publisher makes a profit of $10 for selling one book. If the cost of each book is $60, find the profit percent for the publisher.

17. Mr. Chan bought a house at $2 000 000 and sold it for $1 500 000. What was the loss percent?

18. The cost of a TV game is $80. If it were sold at a profit of 20%, what would be the selling price?

19. The marked price of a suit was $2 000. It was sold at a discount of 15%. What was the selling price?

20. The marked price of a pair of shoes was $450 and it was sold at $360. Find the discount percent.

21. A box of model with marked price of $600 is sold at 10% less.

    (a) Find the discount.   **(b)** Find the selling price.

Section A(2)

22. Evaluate the following.

    (a) $40 \times (1 - 20\%)$ **(b)** $552 \times (1 + 15\%)$

    (c) $660 \div (1 + 32\%)$ **(d)** $210 \div (1 - 65\%)$

23. (a) 12% of x is 25% of 48, find x.   **(b)** 60% of y is 20% of 150, find y.

24. There are 125 boys in F.3. If 60% of the number of girls is equal to 48% of the number of boys, find

    (a) the number of girls in F.3, and   **(b)** the total number of students in F.3.

25. Peter and Mary received some pocket money from their father. If Mary got $80 and Peter got 60% of hers, find the total amount of the pocket money.

26. There are 1 200 students in a secondary school. 35% of them go to school by public transport.

    (a) Find the number of students who don't go to school by public transport.

    (b) For those students who go to school by public transport, 85% of them go to school by bus. How many students go to school by bus?

27. The salary of Mr. Chan will increase by 15% next month. His present salary is $12 000. What will his new salary be next month?

28. Mrs Yeung spent $220 000 to buy 20 000 shares of a company.

    (a) After 1 month, the value of the shares increased by 10%, what is the present value of her shares?

    (b) After another month, the value of the shares decreased by 40%. What is the present value of her shares?

29. The length and width of a rectangle are 12 cm and 5 cm respectively. If the length is increased by 50% and the width is decreased by 20%, find the percentage increase in the area of the rectangle.

30. The profit gained by a manufacture for selling a table is $20 and the profit percent is 10%.

    (a) Find the cost of each table.

    (b) If the profit percent is 6% now, find the profit gained by the manufacture when 10 tables were sold.

31. If a piece of goods is sold at 5% less and the discount is equal to $200, find its marked price.

Section B

32. A hawker used $600 to buy 1 000 apples. He sold 30% of them at $1.5 each and the remaining were sold at $1.2 each.

    (a) Find the cost of each apple.   **(b)** Find the profit percent gained by the hawker.

33. A company is on sale and it offers 15% discount and a coupon of $30 for any single transaction of a total amount of $500 or more.

    (a) If the marked price of a piece of goods is $600, find its selling price.

    (b) If the value of the coupon is added, find the actual discount percent of the goods.

34. The population of a district is 6 400 this year and its population increases by 5% each year.

    (a) Find the population of that place after 1 year.

    (b) In how many years will the population of that place exceed 7 000?

35. The marked price of a school bag is $150. If the marked price is increased by 15% and then sold at 20% discount, find

    (a) the selling price, and   **(b)** the actual discount percent.