

**TB(2A) Ch. 1 Rate and Ratio**  
**Multiple Choice Questions****1. [13 - 14 S.2 S.Test 1 #3]**

If  $a:b = \frac{1}{2}:\frac{1}{3}$  and  $b:c = 3:5$ , find  $a:b:c$ .

- A. 1:3:5
- B. 2:3:5
- C. 3:2:5
- D. 9:6:10

**2. [13 - 14 S.2 S.Test 1 #4]**

The scale of a map is 1 : 50,000. If the actual length of a highway is 20 km, find its length on the map.

- A. 4 cm
- B. 20 cm
- C. 40 cm
- D. 50 cm

**3. [13 - 14 S.2 S.Test 1 #9]**

\$580 is shared by Mickey and Minnie in the ratio of 7:3. If Mickey gives \$58 to Minnie, find the ratio of the share of Mickey to the share of Minnie.

- A. 2:1
- B. 3:2
- C. 5:2
- D. 6:5

**4. [13 - 14 S.2 S.Test 1 #10]**

City A and city B are  $x$  km apart. Tiffany drives from city A to city B in  $y$  minutes. If she uses the same speed to drive from city B to city C which are  $z$  km apart, find the time required.

- A.  $\frac{zy}{x}$  hours
- B.  $\frac{xy}{z}$  hours
- C.  $\frac{60zy}{x}$  hours
- D.  $\frac{zy}{60x}$  hours

**5. [13 - 14 S.2 Mid-year Exam #2]**

Which of the following is NOT an example of rate?

- A.  $\frac{2\text{ m}}{10\text{ cm}}$
- B. \$5 per kg

- C. 38 students/class    D.  $\frac{14 \text{ sweets}}{7 \text{ children}}$

6. [13 - 14 S.2 Mid-year Exam #3]

If  $a : b = 1 : 2$ , which of the following must be true?

- A.  $a = 2b$                       B.  $a + b = 3$   
C.  $b = 2a$                       D.  $2a : b = 2 : 1$

7. [13 - 14 S.2 Mid-year Exam #17]

The numbers of boys and girls in a class were in the ratio of 7 : 6. There were 5 more boys than girls. Later, 2 boys had withdrawn. Find the new ratio of girls to boys in this class.

- A. 5 : 6                          B. 6 : 7  
C. 10 : 11                      D. 11 : 10

8. [13 - 14 S.2 Mid-year Exam #20]

Peter spent \$5,000 on buying some tiles to cover the entire rectangular floor of his bedroom at a cost of \$250/m<sup>2</sup>. Which of the following are the possible dimensions of his bedroom on a floor plan of scale 1 : 200?

- A. 2.5 cm × 2 cm    B. 4 cm × 3 cm  
C. 4 cm × 3.5 cm    D. 5 cm × 4 cm

9. [13 - 14 S.6 Mock Exam #10]

40 cm<sup>3</sup> of a certain liquid containing alcohol and water in the ratio 3 : 2. How much water must be added to the liquid such that the new ratio of alcohol to water is 4 : 5?

- A. 14 cm<sup>3</sup>  
B. 16 cm<sup>3</sup>  
C. 18 cm<sup>3</sup>  
D. 20 cm<sup>3</sup>

10. [13 - 14 S.2 Final Exam #1]

If  $x : y = 4 : 3$  and  $z : y = 4 : 5$ , find  $x : y : z$ .

- A. 4 : 3 : 5                      B. 12 : 15 : 20  
C. 16 : 12 : 15                D. 20 : 15 : 12

11. [13-14 S.6 Mock Exam #10]

40 cm<sup>3</sup> of a certain liquid containing alcohol and water in the ratio 3 : 2. How much water must be added to the liquid such that the new ratio of alcohol to water is 4 : 5?

- A. 14 cm<sup>3</sup>  
B. 16 cm<sup>3</sup>  
C. 18 cm<sup>3</sup>  
D. 20 cm<sup>3</sup>

**12. [14 - 15 S.2 Mid-Year Exam #1]**

In a Mathematics test, Robin gets 102 marks. If the ratio of Robin's mark to Candy's mark is 6 : 5, how many marks does Candy get?

- A. 85                      B. 102  
C. 119                     D. 187

**13. [14 - 15 S.2 Mid-Year Exam #2]**

In a secondary school, there are 1269 students. It is given that the ratio of the number of teachers to the number of students is 3 : 47. How many teachers and students are there in the school altogether?

- A. 1272  
B. 1350  
C. 1408  
D. 1692

**14. [14 - 15 S.2 Mid-Year Exam #11]**

Usian Bolt, the world record holder of men's 100 m race, can finish 100 m in 9.58 seconds. Convert his speed in km/h.

- A. 16.0 km/h  
B. 34.5 km/h  
C. 37.6 km/h  
D. 57.5 km/h

**15. [14-15 S.6 Mock Exam #8]**

The ratio of weights of a mixture of two types of tea A and B of a new brand of tea is 5 : 7. If the cost of tea A and tea B are \$7 per kg and \$31 per kg respectively, then the average cost of the new brand of tea is

- A. \$21 per kg.  
B. \$22 per kg.  
C. \$23 per kg.  
D. \$24 per kg.

**16. [14 - 15 S.2 Final Exam #4]**

A job can be completed by 24 workers in 18 days. How many days does it take for 36 workers to complete the job?

- A. 12 days              B. 18 days  
C. 27 days             D. 48 days

**17. [14 - 15 S.2 Final Exam #13]**

If  $3:(h-3) = 5:(2k-5)$ ,  $h:k =$

- A. 1:2.            B. 2:1.  
C. 5:6.            D. 6:5.

**18. [15-16 S.2 Mid-year Exam #6]**

Angel, Betty and Candy share a sum of money in the ratio of 4 : 3 : 2. If Candy's share is \$250, the sum of money is

- A. \$625.  
B. \$750.  
C. \$875.  
D. \$1125.

**19. [15-16 S.2 Mid-year Exam #17]**

The running speed of Jane is 3 times her walking speed. She has to run 12 minutes and walk for 4 minutes to finish 6 laps of a 400 m circular track. Find her average speed for 6 laps.

- A. 9 km/h  
B. 60 m/min  
C. 120 m/min  
D. 150 km/h

**20. [15-16 S.2 Mid-year Exam #19]**

It is given that  $a : b : c = 1 : 2 : 3$  and  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 33$ . Find the value of  $\frac{1}{a} - \frac{1}{b} - \frac{1}{c}$ .

- A. -4  
B.  $\frac{1}{6}$   
C. 1  
D. 3

**21. [15-16 S.2 Final Exam #2]**

It is given that  $A : B = B : C = 2 : 3$ , then  $A : C =$

- A. 2 : 3.  
B. 3 : 2.  
C. 4 : 9.  
D. 9 : 4.

**22. [16-17 S.2 Mid-year Exam #1]**

If  $a : b = 3 : 2$  and  $4a = 5c$ , then  $a : b : c =$

- A. 15 : 10 : 12.
- B. 4 : 6 : 5.
- C. 10 : 15 : 8.
- D. 12 : 8 : 15.

**23. [16-17 S.2 Mid-year Exam #13]**

The actual area of a park is  $700 \text{ m}^2$ . If the area of the park on a map is  $28 \text{ cm}^2$ , then the scale of the map is

- A. 1 : 5.
- B. 1 : 25.
- C. 1 : 500.
- D. 1 : 250000.

**24. [16-17 S.2 Final Exam #1]**

Consider the following statements and determine if a ratio should be used to relate the quantities.

I. Amy can type 1200 words in 10 minutes.

II. The numbers of six different house members in a class at a school are 6, 5, 6, 14, 2 and 7 respectively.

- A. I only
- B. II only
- C. I and II
- D. None of the above

**25. [16-17 S.2 Final Exam #14]**

The distance between two points on a map is 1 mm and the corresponding actual distance is 2 m. If the area of a region on the map is  $1 \text{ mm}^2$ , the corresponding actual area is

- A.  $2 \text{ m}^2$ .
- B.  $4 \text{ m}^2$ .
- C.  $2 \text{ km}^2$ .
- D.  $4 \text{ km}^2$ .

**26. [17-18 S.2 Mid-year Exam #1]**

It is given that  $a : b = 4 : 2$  and  $b : c = 3 : 1$ . Find  $a : b : c$ .

- A. 12 : 6 : 1
- B. 6 : 3 : 1
- C. 4 : 3 : 1
- D. 4 : 2 : 1

**27. [17-18 S.2 Mid-year Exam #2]**

There are 720 boys in a school. If the ratio of the number of boys to the number of girls is 3 : 2, find the total number of boys and girls in the school.

- A. 432
- B. 480

- C. 1200      D. 1440

**28. [17-18 S.2 Mid-year Exam #11]**

It is given that 10 Hong Kong Dollars (HKD) can be exchanged for 145 Japanese Yen (JPY) and 5 Euro Dollars (EUR) can be exchanged for 46.1 Hong Kong Dollars. Find the amount of JPY can be exchanged for EUR 20, correct to the nearest JPY.

- A. 134      B. 1337  
C. 2674      D. 3342

**29. [17-18 S.2 Mid-year Exam #20]**

If  $2a = 3b$  and  $4b - \frac{c}{3} = 0$ , which of the followings must be true?

- I.  $b : c = 4 : 3$   
II.  $a : b : c = 2 : 3 : 24$   
III.  $\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = 8 : 12 : 1$

- A. III only  
B. I and II only  
C. I and III only  
D. II and III only

**30. [17 - 18 S.2 S.Test 1 #4]**

Which of the following cannot be a ratio?

- A. 4 m/s : 3 m/s  
B. 4 m : 3 m<sup>2</sup>  
C. 4 : 3  
D. 1 cm<sup>3</sup> : 2 km<sup>3</sup>

**31. [17 - 18 S.2 S.Test 1 #5]**

The following shows the lengths of some line segments on three scale drawings and their corresponding actual lengths. Which of the scale drawings use the scale 1 : 25?

	Length on scale drawing	Actual length
I.	8 mm	2 cm
II.	6 cm	1.5 m
III.	4 cm	1 m

- A. I and II only  
B. I and III only

- C. II and III only
- D. I, II and III

**32. [17 - 18 S.2 S.Test 1 #7]**

Which of the following water pumps takes the longest time of pumping 2017 L of water?

- A. Water pump *A* can pump 1000 mL of water in 10 seconds.
- B. Water pump *B* can pump 1400 mL of water in  $\frac{1}{3}$  minutes.
- C. Water pump *C* can pump 2250 mL of water in  $\frac{1}{2}$  minutes.
- D. Water pump *D* can pump 3200 mL of water in 40 seconds.

**33. [17 - 18 S.2 S.Test 1 #8]**

100 coupons are divided among Alice, Betty and Candy. Betty gets  $\frac{1}{4}$  of the coupons and Alice gets 15 more than Betty. The ratio of the number of coupons obtained by Alice, Betty and Candy is

- A. 2 : 5 : 13.
- B. 5 : 3 : 12.
- C. 7 : 5 : 9.
- D. 8 : 5 : 7.

**34. [17 - 18 S.2 Final #3]**

The scale of a map is 1 : 500 000. If two libraries are 2.38 cm apart on the map, then the actual distance between the two libraries is

- A. 1.19 km.
- B. 2.10 km.
- C. 11.9 km.
- D. 21.0 km.

**35. [17 - 18 S.2 Final #12]**

Let  $a$ ,  $b$  and  $c$  be non-zero numbers. If  $3a = 4b$  and  $a : c = 6 : 5$ , then  $\frac{a + 2b}{b + 4c} =$

- A.  $\frac{30}{49}$ .
- B.  $\frac{21}{32}$ .
- C.  $\frac{11}{13}$ .
- D.  $\frac{7}{8}$ .

~END~