Unit 1

Numbers and Four Operations of Integers

Concept Review

1. Numbers

(a) Natural numbers: 1, 2, 3, 4, 5, …

(b) Whole numbers: 0, 1, 2, 3, 4, 5, …

(c) Even numbers: All the integers which are divisible by 2

(d) Odd numbers: All the integers which are not divisible by 2

(e) Prime numbers: All the natural numbers (1 excluded) which are only divisible by 1 and itself

Points to Remember

1 is not a prime number.

(f) Composite numbers: All the natural numbers which are divisible by at least one natural number other than 1 and itself

Points to Remember

1 is not a composite number.

2. Basic Operations

(a) Addition

For example, 21 + 36 = 57 (57: Sum)

(b) Subtraction

For example, 18 – 3 = 15 (15: Difference)

(c) Multiplication

For example, 8 × 9 = 72 (72: Product)

(d) Division

For example, 45 ÷ 6 = 7 … 3 (7: Quotient, 3: Remainder)

3. Order of Operations

(a) If there are brackets in an expression, complete the parts in the brackets first.

(b) Multiplication and division must be completed before addition or subtraction.

Quick Test

Determine whether each of the following is true (T) or false (F).

1. For 65 432, '4' stands for 400. (T / F)
2. All the prime numbers are odd numbers. (T / F)
3. 63 is divisible by 7. (T / F)
4. 3 + 5 × 6 = 48 (T / F)
5. 12 ÷ 3 × (3 + 1) = 1 (T / F)

Fill in the Blanks

1. If a natural number can be divided completely by at least one natural number other than 1 and the number itself, it is called a _____ number.

2. Write down the first five prime numbers. _____

3. Calculate $2 \times 6 - 3 + 5 \times 7$. _____

4. Calculate $12 \div 3 \times (20 - 6 \times 3)$. _____

5. Calculate $(10 - 7) \div 3 + 12 \div 3$. _____

6. Calculate $(8 + 17) \div 5 + 3 \times 6$. _____

Exercise

Level 1

Calculate each of the following expressions (**1 – 9**).

1. $12 - 6 - 2$

2. $12 - (6 - 2)$

3. $12 \div 6 \div 2$

4. $12 \div (6 \div 2)$

5. $12 \div 6 \times 2$

6. $12 \times 6 - 2$

7. $12 \times (6 - 2)$

8. $12 - 6 \times 2$

9. $(12 - 6) \times 2$

14. The original price of a calculator is \$120. The shopkeeper first increases the price by 50% and then decreases the price by 20%. Find the new price of the calculator.

Multiple-choice Questions

15. In a summer sale, the prices of all articles are decreased by 20%. If the original price of a dress is \$160, what is the new price?

A. \$32

B. \$128

C. \$140

D. \$152 ☐

16. Arrange the numbers 0.37, $\frac{37}{50}$ and $9\frac{1}{4}\%$ from the smallest to the largest.

A. $0.37 < \frac{37}{50} < 9\frac{1}{4}\%$

B. $9\frac{1}{4}\% < 0.37 < \frac{37}{50}$

C. $\frac{37}{50} < 0.37 < 9\frac{1}{4}\%$

D. $9\frac{1}{4}\% < \frac{37}{50} < 0.37$ ☐

17. The capacity of a bottle is 180 cm^3 and it is 40% full. If 60 cm^3 of water is added. Find the volume of the water in the bottle.

A. 72 cm^3

B. 92 cm^3

C. 122 cm^3

D. 132 cm^3 ☐

18. Which of the following equalities is **NOT** correct?

A. 95% = 0.95

B. 100% = 1

C. $2\frac{1}{8} = 212.5\%$

D. $\frac{8}{13} = 0.615$ ☐

19. $15\% + 30\% \times 20\% =$

A. 15.6%.

B. 21%.

C. 75%.

D. 615%. ☐

For HKDSE **20.** Simon is 20% lighter than Tom and Peter is 25% heavier than Simon. If Tom's weight is 60 kg, find the weight of Peter.

A. 48 kg

B. 52 kg

C. 58 kg

D. 60 kg ☐

STEM Exploration

Earth-like Planets

For the same volume, different substances may have different weights. This is called the density (密度) of the substance with unit of g/cm^3 or kg/m^3. For example, 1 m^3 of water weighs 1000 kg while 1 m^3 of iron weighs about 7874 kg. Thus, we say that the densities of water and iron are 1000 kg/m^3 and 7874 kg/m^3 respectively. The average density of the Earth is about 5514 kg/m^3.

Scientists are looking for planets outside the Solar System which may be habitable. One indication is the density of the planet. If the density of the planet is close to the density of the Earth, it means there may be solid grounds for living things. You may visit the website through the the QR code below to learn more about Earth-like Planets:

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Glossary

capacity	容量	cube	正方體
cuboid	長方體	volume	體積