

Fractions



1. What **fraction** of the figure is shaded?

- (A) $\frac{1}{6}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$ (E) $\frac{5}{6}$

Remember to **simplify** fractions.

$$\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$$

2. Terry owns $\frac{1}{3}$ of the cars in a garage. If there are 12 cars in the garage, how many cars does Terry own?

- (A) 1
(B) 2
(C) 3
(D) 4
(E) 6

$$\frac{1}{2} \text{ of } 10 = \frac{1}{2} \times 10 = 10 \div 2 = 5$$

3. There are 6 boys on a team. If there are twice as many girls as boys on the team, what fractional part of the team is boys?

- (A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$
(D) $\frac{2}{3}$ (E) $\frac{3}{4}$

4. One-fifth of the students in a class chose math as their favorite subject. If 6 students chose math as their favorite subject, how many students are in the class?

- (A) 18
(B) 20
(C) 24
(D) 25
(E) 30

5) A copying machine makes copies at a constant rate of 20 copies per minute. A certain job requires 100 copies. What fraction of the job will the machine finish in 2 minutes?

- (A) $\frac{1}{5}$ (B) $\frac{2}{5}$ (C) $\frac{3}{5}$
(D) $\frac{4}{5}$ (E) $\frac{5}{5}$

6) Joy bought 3 boxes of cookies containing 10 cookies each. If she ate 18 cookies, what fractional part of the cookies has not been eaten?

- (A) $\frac{2}{5}$ (B) $\frac{13}{30}$ (C) $\frac{7}{15}$
(D) $\frac{1}{2}$ (E) $\frac{8}{15}$

Sequences & Patterns

1. The next number in the series 3, 4, 6, 9, 13, ... is

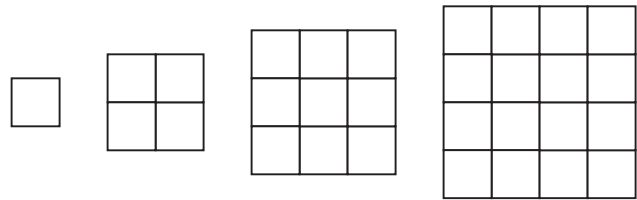
- (A) 16
- (B) 17
- (C) 18
- (D) 19
- (E) 20

2. What is the next number in the sequence 1, 3, 9, 27, ...?

- (A) 36
- (B) 54
- (C) 60
- (D) 72
- (E) 81

3. How many squares will the next figure have?

- (A) 24
- (B) 25
- (C) 27
- (D) 28
- (E) 30



4. My plant doubles in size every day. On Friday, it is _____ times as big as it was on Monday of the same week.

- (A) 2
- (B) 4
- (C) 8
- (D) 16
- (E) 20

5. The next triangle in the pattern will have how many stars?

- (A) 13
- (B) 14
- (C) 15
- (D) 16
- (E) 17



6. If the number pattern shown continues to the right, the 24th number will be

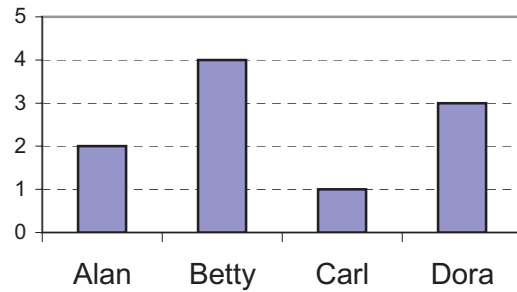
- (A) 1
- (B) 3
- (C) 5
- (D) 7
- (E) 9

1, 3, 5, 7, 9, 1, 3, 5, 7, 9, ...

Bar Graphs

Questions 1-3 refer to the graph.

Books Borrowed at a Library



1. Betty borrowed the same number of books as

- (A) Alan and Carl
- (B) Carl
- (C) Alan and Dora
- (D) Dora
- (E) Carl and Dora

2. Alan borrowed what percent of the total number of books borrowed?

- (A) 10%
- (B) 20%
- (C) 30%
- (D) 40%
- (E) 50%

3. Betty, Carl and Dora combined borrowed how many times the number of books Alan borrowed?

- (A) 2
- (B) 3
- (C) 4
- (D) 5
- (E) 6

Questions 4-6 refer to the graph.

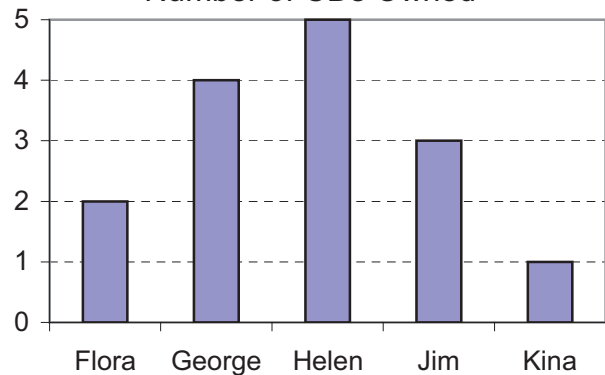
4. What is the **average** number of CDs owned by the five students?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

5. Which student owns **one-fifth** of the number of CDs accounted for in the graph?

- (A) Flora
- (B) George
- (C) Helen
- (D) Jim
- (E) Kina

Number of CDs Owned



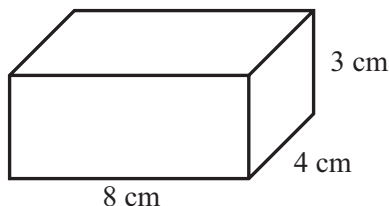
6. Flora and George combined own **what fraction** of the number of CDs accounted for in the graph?

- (A) $\frac{1}{5}$
- (B) $\frac{2}{5}$
- (C) $\frac{3}{5}$
- (D) $\frac{4}{5}$
- (E) $\frac{5}{5}$

Volume

1. The **volume** of the box is equal to

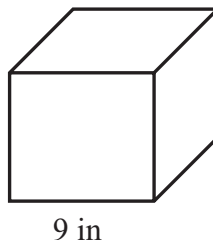
- (A) 96 cubic centimeters
- (B) 92 cubic centimeters
- (C) 86 cubic centimeters
- (D) 80 cubic centimeters
- (E) 15 cubic centimeters



Volume of a **box** = length × width × height

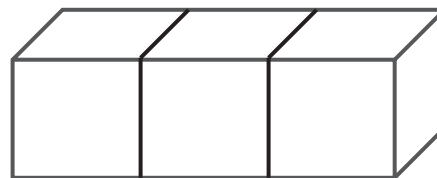
2. What is the **volume** of the cube in cubic inches?

- (A) 27
- (B) 81
- (C) 343
- (D) 729
- (E) 999



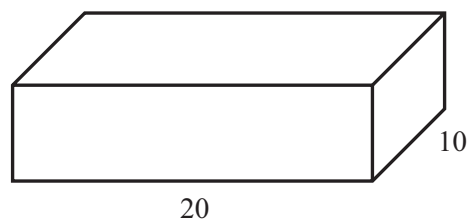
3. A box is made up of cubes measuring 2 feet to a side. What is the **volume** of the rectangular box?

- (A) 18 cubic feet
- (B) 21 cubic feet
- (C) 24 cubic feet
- (D) 27 cubic feet
- (E) 30 cubic feet



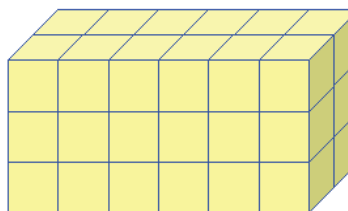
4. What is the **height** of the rectangular solid if its volume is 1,000 ?

- (A) 4
- (B) 5
- (C) 8
- (D) 9
- (E) 10



5. How many **smaller cubes** make up this solid object?

- (A) 28
- (B) 32
- (C) 36
- (D) 40
- (E) 44



6. A tank in the shape of a rectangular solid has dimensions 5 feet by 4 feet by 3 feet.

If $\frac{3}{4}$ of the tank is filled with water, what is the volume of the water, in cubic feet?

- (A) 30
- (B) 35
- (C) 40
- (D) 45
- (E) 50

SECTION 1
Time – 30 Minutes
25 Questions

Following each problem in this section, there are five suggested answers. Work each problem in your head or in the blank space provided at the right of the page. Then look at the five suggested answers and decide which one is best.

Note: Figures that accompany problems in this section are drawn as accurately as possible EXCEPT when it is stated in a specific problem that its figure is not drawn to scale.

1. Gail has 22 books and Rob has 6 books. How many books must Gail give Rob if each are to have the same number of books?

- (A) 4
 - (B) 5
 - (C) 6
 - (D) 7
 - (E) 8
-

2. $\frac{1}{4} \times 8 \times 10 =$

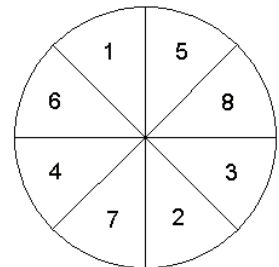
- (A) 20
 - (B) 24
 - (C) 30
 - (D) 36
 - (E) 40
-

3. A concert area was set up with 16 rows of chairs. Each row had 12 chairs. In addition, there were 9 chairs set up on the stage. Which expression can be used to find how many chairs there were in all?

- (A) $(12 \times 16) + (12 \times 9)$
 - (B) $(16 + 12) \times 9$
 - (C) $(12 \times 9) + 16$
 - (D) $(16 \times 12) + 9$
 - (E) $(16 + 12) \times (9 + 12)$
-

4. If a dart is thrown at the dartboard, what are the chances it will land on an even number?

- (A) 10%
- (B) 25%
- (C) 50%
- (D) 75%
- (E) 100%



5. If $52 + 87 = (100 \times 1) + (10 \times \square) + (9 \times 1)$, then $\square =$

- (A) 2
- (B) 3
- (C) 5
- (D) 6
- (E) 9

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