

Directions: Answer the following question(s).

1

$$2 \left[(9 - 4)^2 \div 5 \right]$$

Simplify the following expression

=

2

Simplify $5(9+6) \div (8-7)$.

3

$$\frac{3}{4} + \frac{1}{2}$$

Simplify the following expression

=

write answer in simplified fraction form.

4

$$\frac{3}{5} + \left(-\frac{1}{2}\right)$$

Simplify the following expression

=

write answer in simplified fraction form.

5

$$-\frac{7}{9} \cdot \frac{3}{8}$$

Simplify the following expression

=

write answer in simplified fraction form.

6

To which subsets of the real numbers does the number 0.7789.... belong?

- A. Rational B. Irrational C. Imaginary

7

What kind of number is 1.875?

- A. Rational B. Irrational C. Imaginary

Directions: Answer the following question(s).

8 What kind of number is $\sqrt{112}$?

- A. Rational B. Irrational C. Imaginary

9 To which specific subset of real numbers does the number -34 belong?

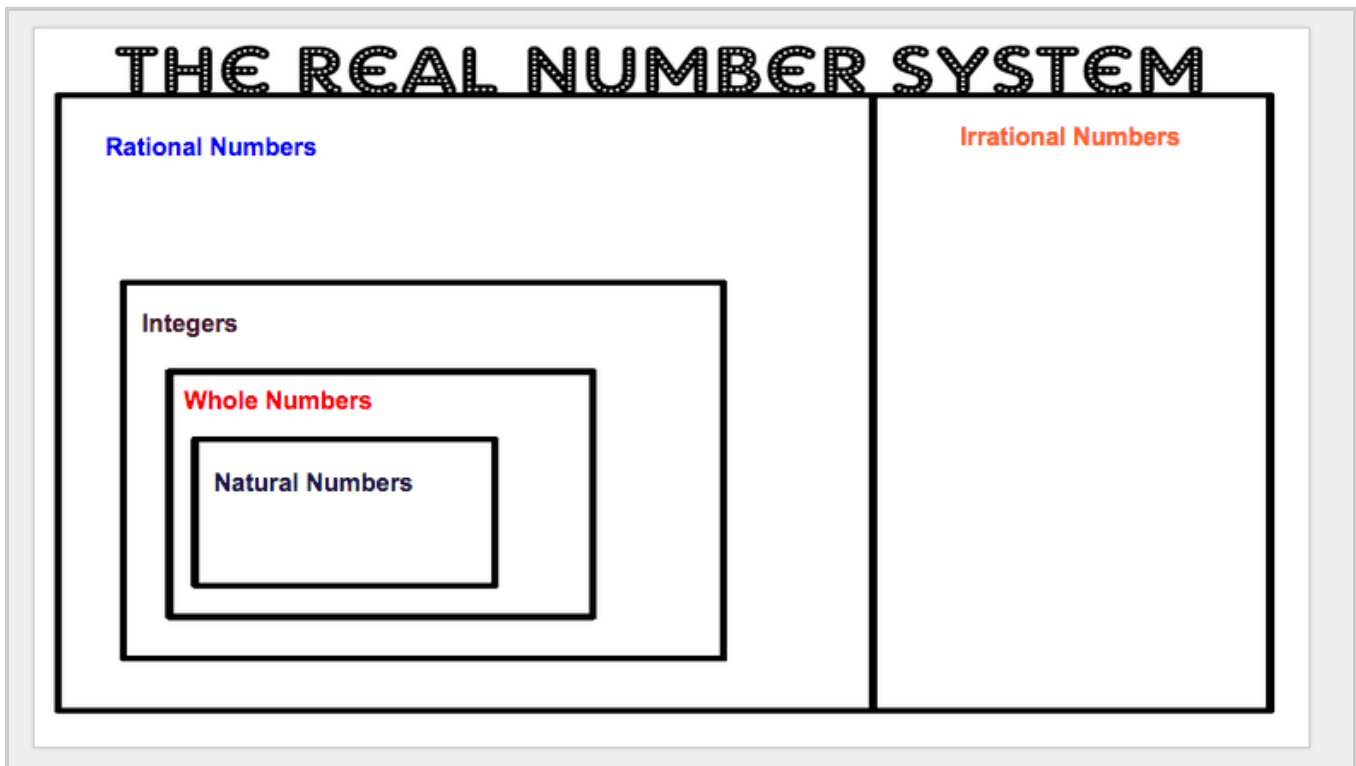
10 Can a natural number be a whole number?

- A. Yes B. No

11 Place the following set of numbers in the correct spot on the venn diagram of real numbers. You only have to write the number once. Place it in the most specific place.

{-4, 5.4353....., 17, 100, 0, -14, 1/2, -3/5, π , 1.33333(repeating)}

Draw your answer in the box below.



Directions: Answer the following question(s).

12

$$-28 = s - 5$$

Solve the following equation.

13

$$2.8x = -9.24$$

Solve

14

$$\frac{x}{10} + 8 = 19$$

Solve

15

$$7.9x + 10.1 = 81.2$$

Solve

16

$$\frac{n + 5}{5} = 8$$

Solve

17

Simplify

$$\sqrt{16}$$

A. ± 8 B. ± 4

C. 4

D. 8

18

Simplify

$$\sqrt{40}$$

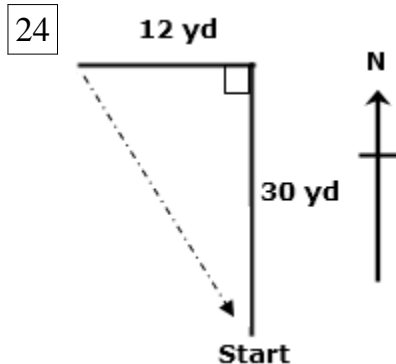
A. About 2 and 20

B. About ± 6 C. About ± 7

D. -10 and -4

Directions: Answer the following question(s).

- 19 What is the simplified form of $\sqrt{225}$?
- A. 450 B. 15 C. 50,625 D. 112.5
- 20 What is the square root of 70 to the nearest integer?
- A. 8 B. 7 C. 35 D. 9
- 21 Solve the following equation: $x^2 = 529$.
- A. $x = 23$ and -23 B. $x = 23$ C. $x = 279,841$ and $-279,841$ D. $x = 279,841$
- 22 Can 8ft, 15ft, and 17ft be the lengths of a right triangle?
- A. Yes B. No
- 23 Can the set of lengths be the sides of a right triangle?
5 meters, 40 meters, 41 meters
- A. Yes B. No

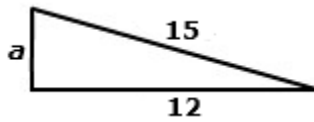


Carmen walked 30 yards due north and 12 yards west, but then she went directly back to her starting point, as shown by the dotted line. How far (to the nearest yard) did Carmen travel to get back to where she started?

- A. 42 yards B. 32 yards C. 21 yards D. 18 yards

Directions: Answer the following question(s).

25 What is the value of a in the right triangle shown below?

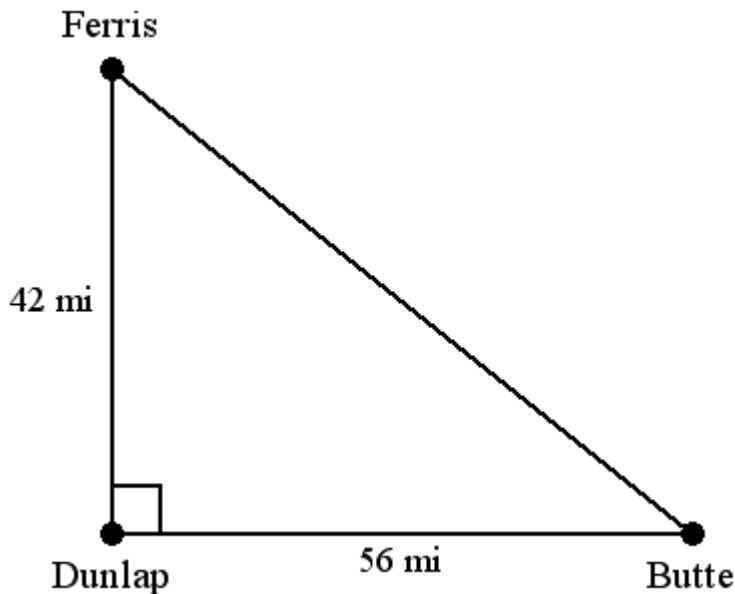


- A. $a = \bar{6}$ B. $a = 3$ C. $a = 9$ D. $a = 81$

26 Find the length of the hypotenuse of a right triangle with legs of 20 cm and 15 cm.

- A. 35 cm B. 625 cm C. 13 cm D. 25 cm

27 Craig used the diagram to compute the distance from Ferris to Dunlap to Butte. How much shorter is the distance directly from Ferris to Butte than the distance Craig found?



- A. 14 mi B. 28 mi C. 70 mi D. 98 mi

28 What is the distance between the points $(10, 12)$ and $(-4, -36)$?

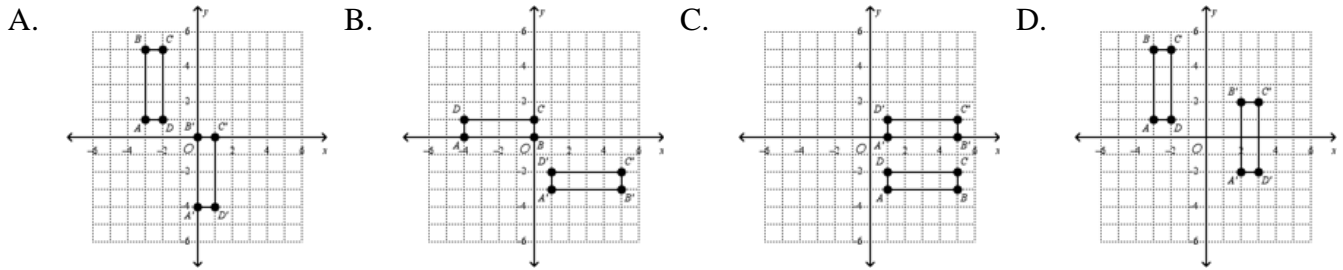
- A. 14 units B. 22 units C. 48 units D. 50 units

29 In which quadrant is the point (x,y) located if x is negative and y is negative?

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

Directions: Answer the following question(s).

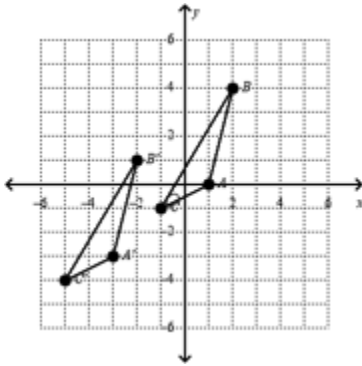
30 Rectangle $ABCD$ has vertices $A(-3,1)$, $B(-3,5)$, $C(-2,5)$, and $D(-2,1)$. Graph $ABCD$ and it's image translated 3 units to the right and 5 units down.



31 Use arrow notation to write a rule that describes the translation of a point from $(-3,-5)$ to $(-6,-4)$.

- A. $(x,y) \rightarrow (x-3, y-1)$ B. $(x,y) \rightarrow (x-3, y+1)$ C. $(x,y) \rightarrow (x+3, y+1)$ D. $(x,y) \rightarrow (x+3, y-1)$

32 Use arrow notation to write a rule that describes the translation shown on the graph. REMEMBER always go from Pre-Image to Image.



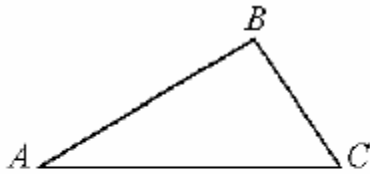
- A. $(x,y) \rightarrow (x+4, y-3)$ B. $(x,y) \rightarrow (x-4, y-3)$ C. $(x,y) \rightarrow (x-4, y+3)$ D. $(x,y) \rightarrow (x+4, y+3)$

33 Which of the following transformations are isometries?

- A. Reflection B. Rotation C. Dilation D. Translation

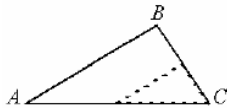
Directions: Answer the following question(s).

- 34 Find the image of $\triangle ABC$ after a dilation with the given center and scale factor.

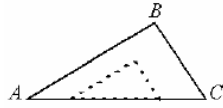


center A , scale factor $\frac{1}{2}$

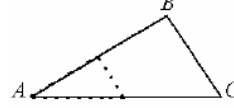
A.



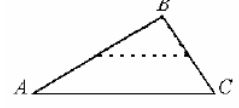
B.



C.



D.



- 35 Out of the degrees listed below which will produce the exact same image being rotated both counterclockwise and clockwise?

A. 90 degrees B. 180 degrees C. 270 degrees D. 45 degrees

- 36 A pre-image shape has a length of 8cm. After going through a dilation the image of that side has a length of 24cm. What is the scale factor of the dilation?

A. 24 B. $\frac{1}{3}$ C. 3 D. 8

- 37 Point $A(-9, -6)$ is reflected over the x -axis. Write the coordinates of A' .

A. $(-9, -6)$ B. $(-9, 6)$ C. $(9, 6)$ D. $(9, -6)$

- 38 What figure has one base that is a rectangle and four lateral surfaces that are triangles?

A. Square Pyramid B. Cone C. Rectangular Prism D. Rectangular Pyramid

- 39 A solid with two parallel and congruent bases **cannot** be which of the following?

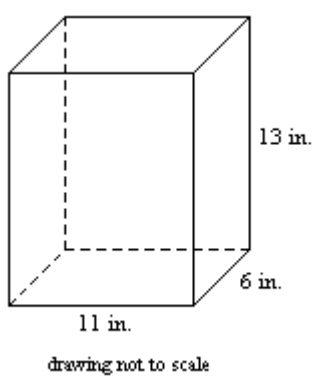
A. Cone B. Prism C. Cylinder D. Cube

Directions: Answer the following question(s).

40 A has two bases that are parallel congruent trapezoids.

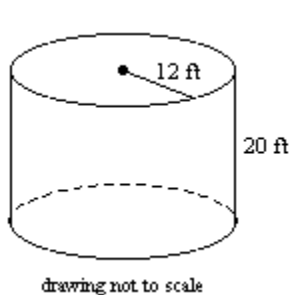
- | | | | |
|------------------------|-----------------------|-----------------------|----------------------|
| A. Sphere | B. Square Pyramid | C. Square Prism | D. Rectangular Prism |
| E. Rectangular Pyramid | F. Cone | G. Cylinder | H. Trapezoidal Prism |
| I. Trapezoidal Pyramid | J. Pentagonal Prism | K. Pentagonal Pyramid | L. Hexagonal Prism |
| M. Hexagonal Pyramid | N. Triangular Pyramid | O. Triangular Prism | |

41 Find the surface area of the prism below.



- A. 287 inches squared B. 574 inches squared C. 30 inches squared D. 858 inches squared

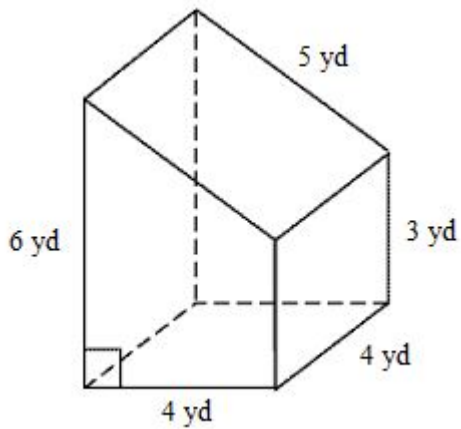
42 Find the surface area of the cylinder below.



- A. 2,413 feet squared B. 1,206 feet squared C. 1,960 feet squared D. 1,659 feet squared

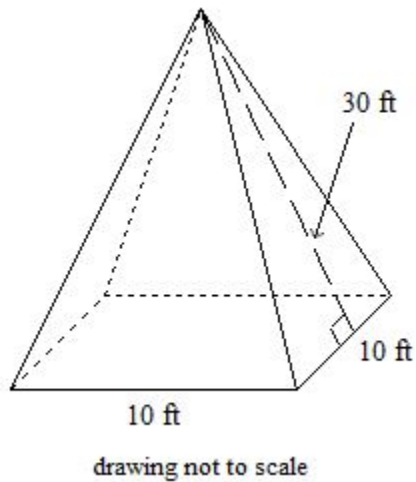
Directions: Answer the following question(s).

- 43 Use a formula to find the surface area of the figure below.



- A. 104 yd^2 B. 108 yd^2 C. 110 yd^2 D. 72 yd^2

- 44 Use a formula to find the surface area of the figure below.



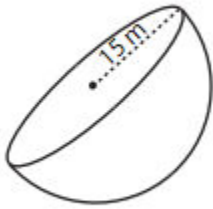
- A. 700 ft^2 B. $1,300 \text{ ft}^2$ C. 600 ft^2 D. $1,200 \text{ ft}^2$

- 45 Find the surface area of a sphere with a radius of 9 ft.

- A. $1,018 \text{ ft}^2$ B. $3,054 \text{ ft}^2$ C. $4,072 \text{ ft}^2$ D. 254 ft^2

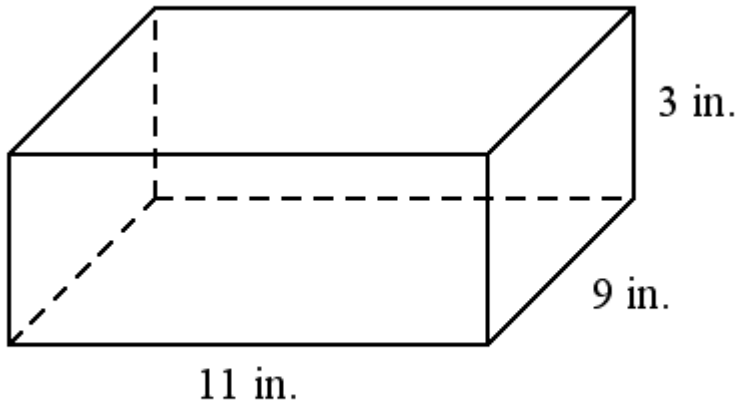
Directions: Answer the following question(s).

- 46 Find the surface area of the hemisphere shown below.



m²

- 47 Find the volume of the following solid to the nearest cubic unit.

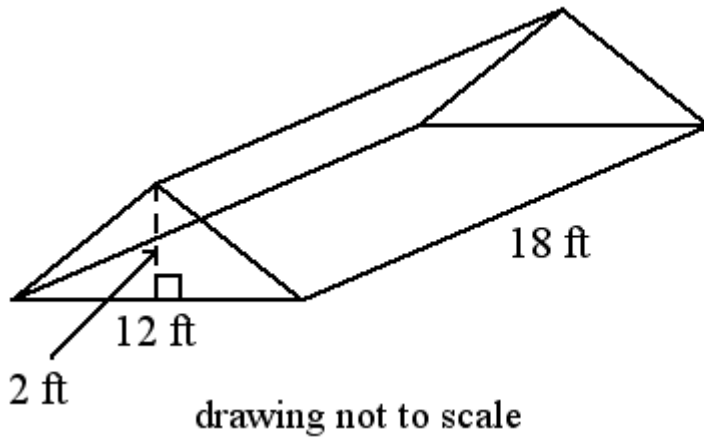


11 in.
drawing not to scale

- A. 23 inches cubed B. 297 inches cubed C. 318 inches cubed D. 159 inches cubed

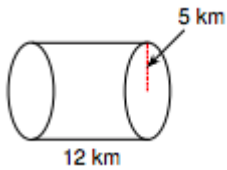
Directions: Answer the following question(s).

48 Find the volume of the following solid to the nearest cubic unit.



- A. 864 cubic feet B. 432 cubic feet C. 216 cubic feet D. 492 cubic feet

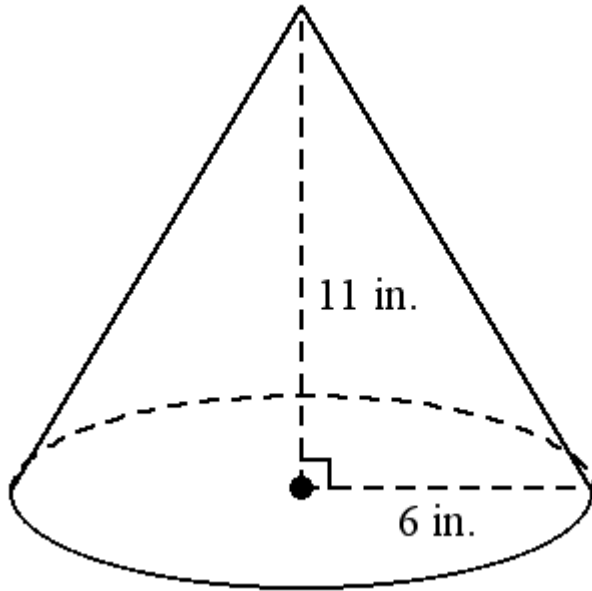
49 Find the volume of the cylinder below.



km³

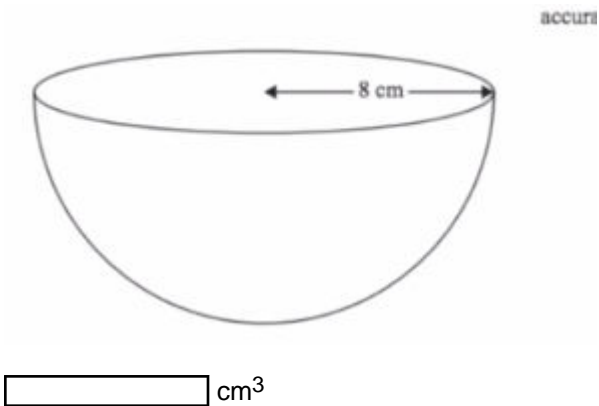
Directions: Answer the following question(s).

- 50 Find the volume of the following solid to the nearest cubic unit.



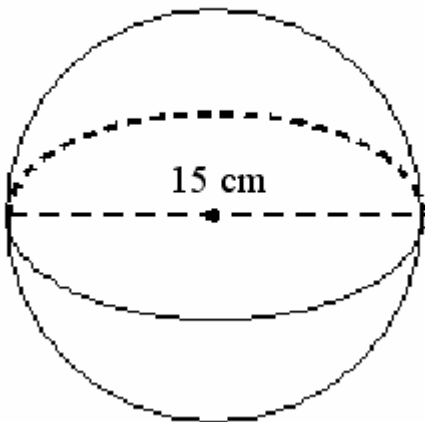
- A. 320 cubic inches B. 415 cubic inches C. 622 cubic inches D. 1,244 cubic inches

- 51 Find the volume of the hemisphere below to the **nearest hundredth (Two places after the decimal)**.



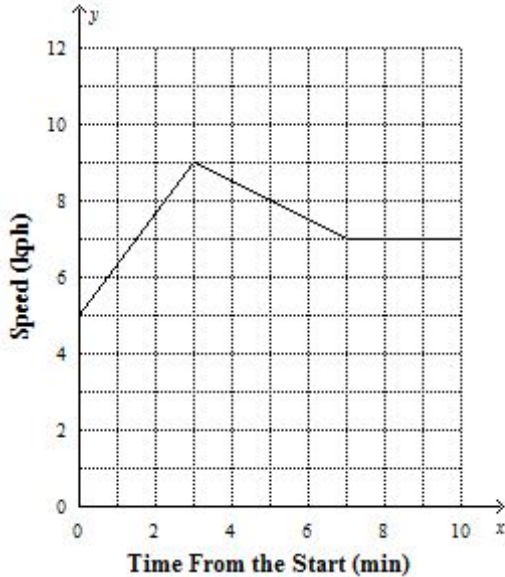
Directions: Answer the following question(s).

52 Find the volume of the solid to the nearest unit.



- A. 1,767 cubic centimeters B. 236 cubic centimeters C. 442 cubic centimeters D. 14,137 cubic centimeters

53 The graph below shows your speed at different times riding a bicycle uphill, downhill, and on level pavement.

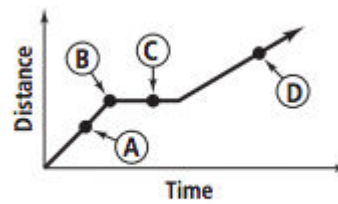


- a. For how long were you going uphill?
- b. For how long were you going downhill?
- c. For how long were you riding on level pavement?

- A. 4 min; 3 min; 3 min B. 3 min; 3 min; 3 min C. 4 min; 3 min; 2 min D. 3 min; 4 min; 3 min

Directions: Answer the following question(s).

- 54 The graph shows your distance from the practice field as you go home after practice. You received a ride from a friend back to his house where you ate supper. You then walked home from there. Which point



represents a time when you were eating supper?

- A. A B. B C. C D. D

Directions: Answer the following question(s).

55

Sketch a graph of the speed of a city bus on a daily route. Label each section.

- A - bus pulls away from a stop and increases speed
- B - bus is at a constant speed between stops
- C - bus is stopped
- D - bus increases speed after stopping

Draw your answer in the box below.

