Mathspace

City Mission

Code X, the evil code-breaking master, is on a spree through the city's streets, decoding top secret information that is giving him access to all of the city's finances, gold and valuables. Your mission is to answer the questions he has left on different devices at various locations around the city, starting at the police station. Answering the questions correctly will spell the access code to his computer files and give you the location of the next clue. The path taken will lead you to Code X's hideout. Can you break the code before he escapes?

The length of this police sign is:
- A 40 cm (go to library)
- B 1600 cm (go to telephone booth)
- C 400 cm (go to bank)
- D 800 cm (go to train map)

32 metres is equal to:
- V 0.32 km (go to post office)
- W 0.032 cm (go to bank)
- X 320 cm (go to museum)
- Y 3200 cm (go to rubbish bin)

The volume of this rubbish bin will give you his hideout:
- E 0.36 m^3 (go to Pig and Whistle Café)
- F 3.6 m^3 (go to park bench)
- G .72 m^3 (go to Ye Olde Bookstore)
- H 7.2 m^3 (go to train platform exit)

The area of this shape is:
- P 36 m^2 (go to L'Hotel)
- Q 32 m^2 (go to telephone booth)
- R 30 m^2 (go to train carriage)
- S 24 m^2 (go to newspaper stand)

The volume of air that can fit inside this telephone booth is:
- K 12 800 m^3 (go to newspaper stand)
- L 6400 m^3 (go to library)
- M 360 m^3 (go to police station)
- N 1.28 m^3 (go to train map)

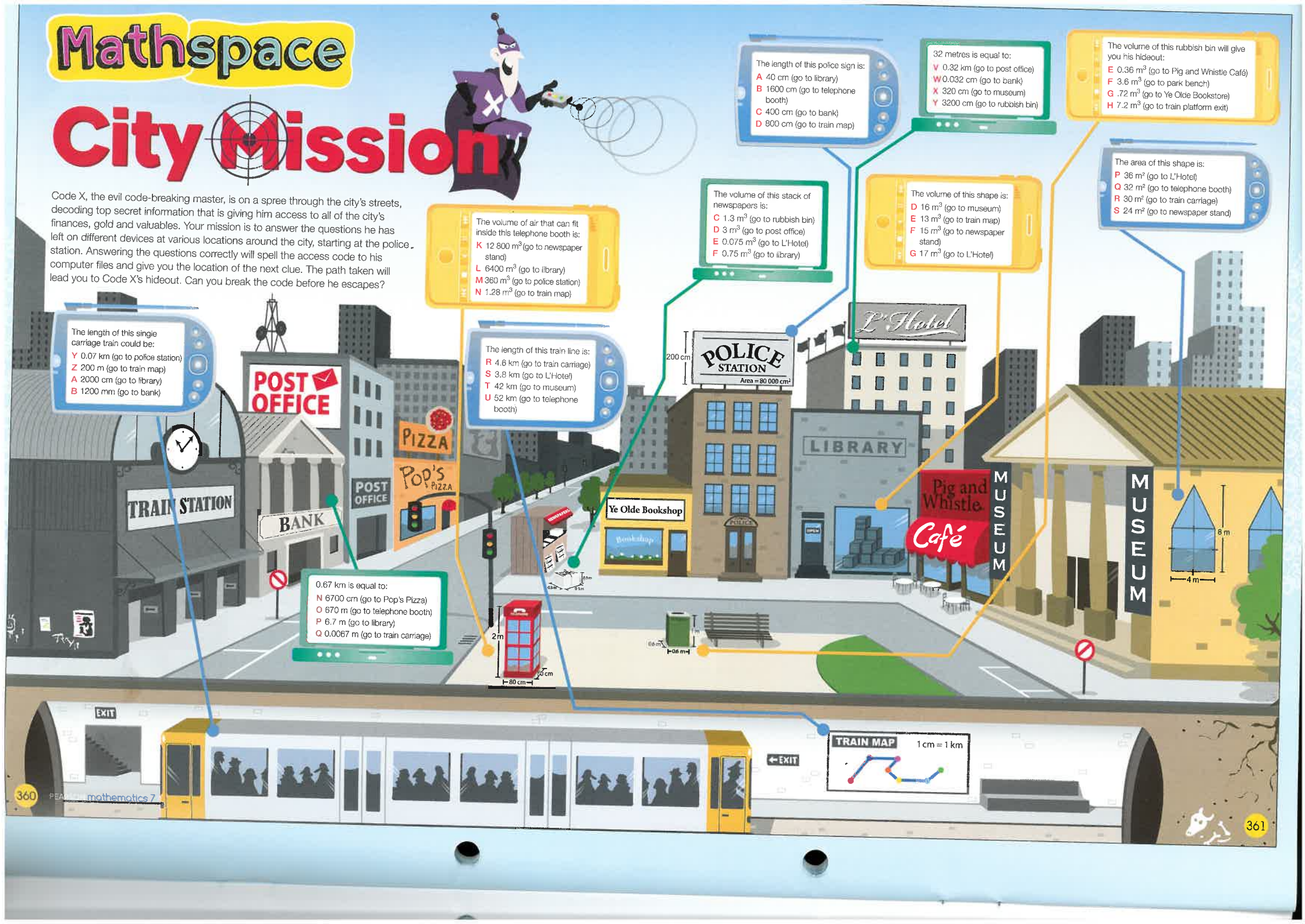
The volume of this stack of newspapers is:
- C 1.3 m^3 (go to rubbish bin)
- D 3 m^3 (go to post office)
- E 0.075 m^3 (go to L'Hotel)
- F 0.75 m^3 (go to library)

The volume of this shape is:
- D 16 m^3 (go to museum)
- E 13 m^3 (go to train map)
- F 15 m^3 (go to newspaper stand)
- G 17 m^3 (go to L'Hotel)

The length of this singie carriage train could be:
- Y 0.07 km (go to police station)
- Z 200 m (go to train map)
- A 2000 cm (go to library)
- B 1200 mm (go to bank)

The length of this train line is:
- R 4.6 km (go to train carriage)
- S 3.8 km (go to L'Hotel)
- T 42 km (go to museum)
- U 52 km (go to telephone booth)

0.67 km is equal to:
- N 6700 cm (go to Pop's Pizza)
- O 670 m (go to telephone booth)
- P 6.7 m (go to library)
- Q 0.0067 m (go to train carriage)



Police Station sign

Length = Area ÷ Width = 80 000 ÷ 200 = 400 cm

C—(go to the bank)

Bank

Convert 0.67 km to cm and m

0.67 km = 0.67 × 1000 m = 670 m

670 m = 670 × 100 cm = 67 000 cm

O—(go to telephone booth)

Telephone booth

Volume = $2 \times 0.8 \times 0.8 = 1.28$ m^3

N—(go to the train map)

Train map

Length of map is (1 + 1 + 0.5 + 0.5 + 1 + 0.6) cm = 4.6 cm

This makes 4.6 km

R—(go to the train carriage)

Train carriage

Change the measurements to m to see which is reasonable.

Y: 0.07 km = 0.07 × 1000 m = 70 m

Z: 200 m

A: 2000 cm = 2000 ÷ 100 m = 20 m

B: 1200 mm = 1200 ÷ 1000 m = 1.2 m

The only reasonable answer is

A—(go to the library)

Count the number of cubes in the structure in the window. There are 16, so the volume is 16 m^3

D—(go to the museum)

Museum

The shape drawn here is a triangle on top of a square.

Area = $4 \times 4 + 0.5 \times 4 \times 4 = 16 + 8 = 24$ m^2

S—(go to newspaper stand)

Newspaper stand

The shape is a rectangular prism, so the volume is $0.3 \times 0.5 \times 0.5 = 0.075$ m^3

E—(go to L'Hotel)

L'Hotel

Convert 32 m to km and cm

32 m = 32 × 100 cm = 3200 cm.
32 m = 32 ÷ 1000 km = 0.032 km

Y—(go to rubbish bin)

Rubbish bin

Volume = $0.6 \times 0.6 \times 1 = 0.36$ m^3

E—(go to Pig and Whistle Cafe)

There is no clue at the Pig and Whistle Café so this is the destination. Also, all of the questions have been answered.

The access code is: **CONRADS EYE**