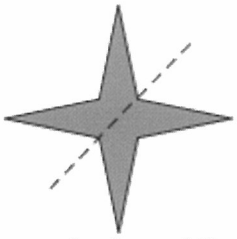
ANSWER KEY

Review Questions:

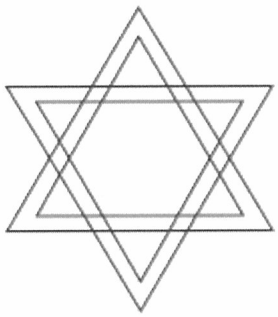
Multiple Choice
Identify the choice that best completes the statement or answers the question.

C 1. In the figure, the dashed line represents



a. a horizontal line of symmetry
b. a lack of symmetry
c. an oblique line of symmetry
d. a vertical line of symmetry

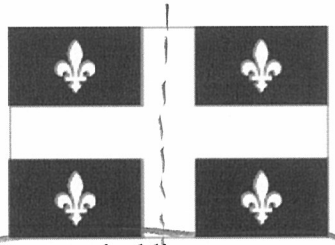
B 2. What is the angle of rotation in the figure?



360 ÷ 6 = 60

a. 30°
b. 60°
c. 90°
d. 120°

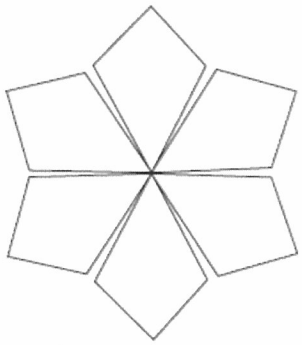
A 3. Identify the type of symmetry shown in the flag of Québec.



a. vertical line symmetry
b. oblique line symmetry
c. no line symmetry
d. horizontal line symmetry

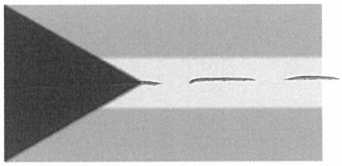
___

4.In the figure shown, the order of rotation is



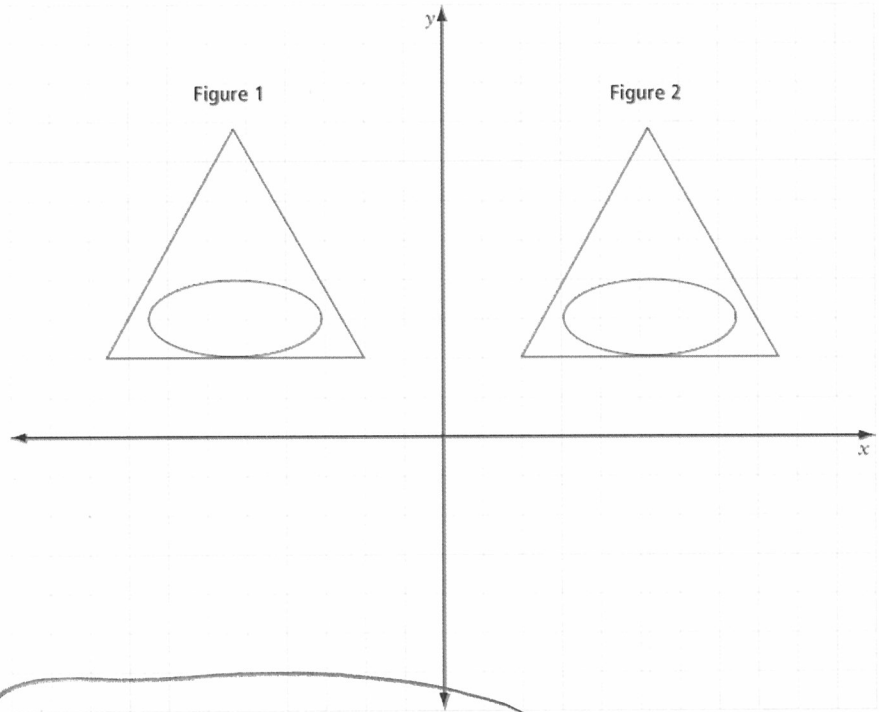
a. 1
b. 3
c. 6
d. 9

5. The symmetry shown by the flag of the Bahamas is



a. vertical line symmetry
b. rotation symmetry
c. oblique line symmetry
d. horizontal line symmetry

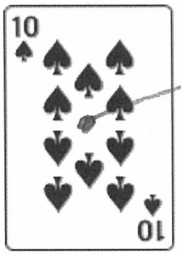
6. Figure 2 results from



a. a reflection of Figure 1 about the *y*-axis
b. a reflection of Figure 1 about the *x*-axis
c. a rotation of Figure 1 around the *y*-axis
d. a rotation of Figure 1 around the *x*-axis

7. What type of symmetry is shown by the playing card?

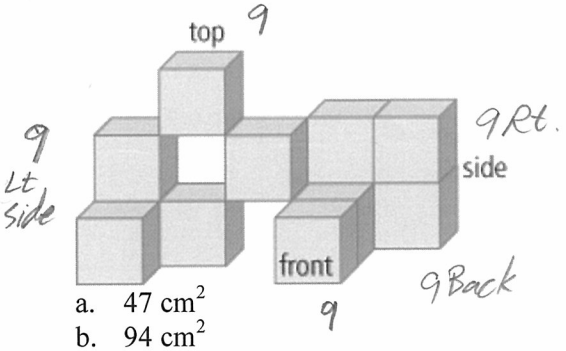
C



180° around the centre

a. horizontal line symmetry
b. oblique line symmetry
c. rotation symmetry
d. vertical line symmetry

____ 8. Each of the 12 identical cubes in the object has dimensions of 2 cm. What is the exposed surface area of the object, excluding the base?



1 cube face = 2cm × 2cm
= 4cm²

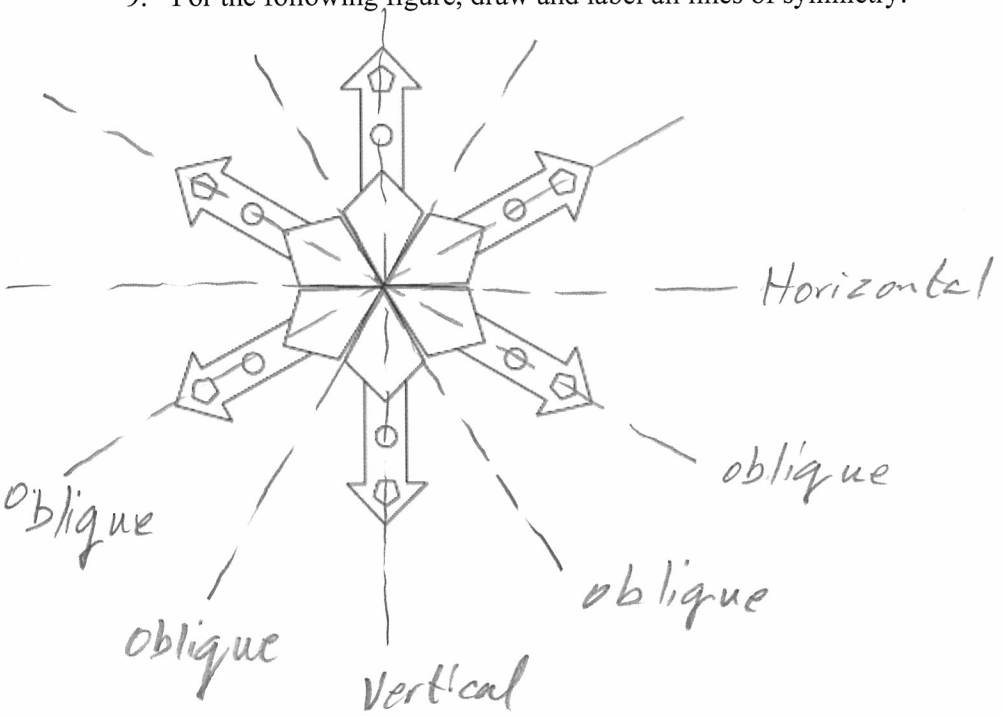
45 faces
× 4 cm²
180 cm²

a. 47 cm²
b. 94 cm²
c. 414 cm²
d. 188 cm²

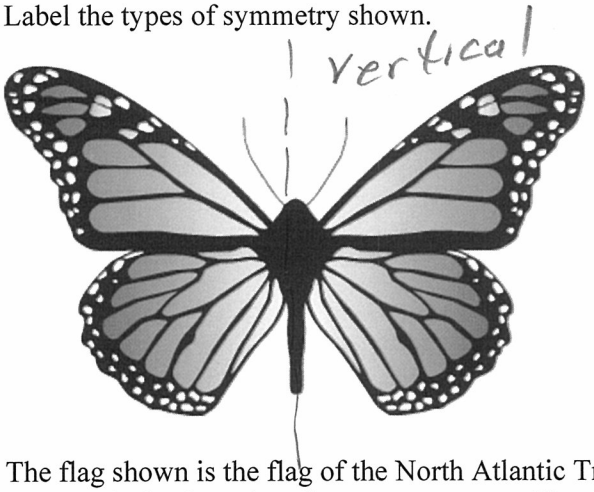
ERROR

Short Answer

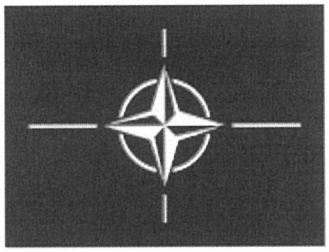
9. For the following figure, draw and label all lines of symmetry.



10. State whether the image below is symmetrical. If it is, draw and label any lines of symmetry. Label the types of symmetry shown.

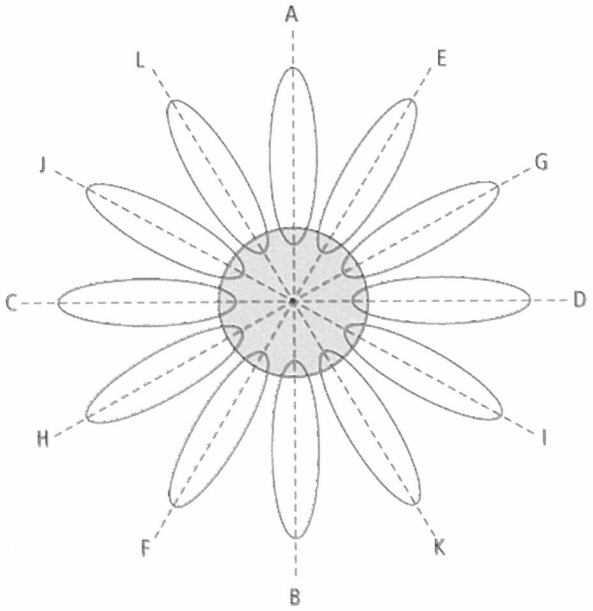


11. The flag shown is the flag of the North Atlantic Treaty Organization (NATO). Is the flag symmetrical? If so, describe any symmetry. Give full details.



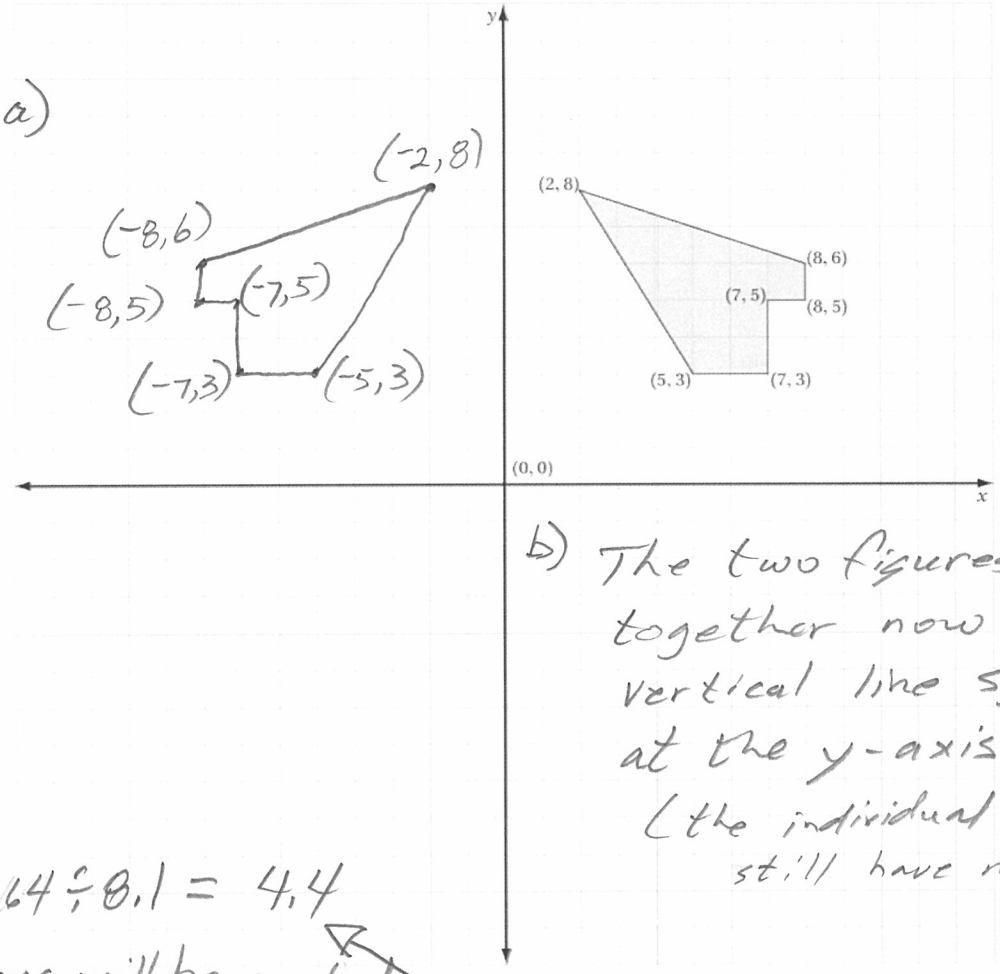
- NO Line symmetry
- rotational symmetry
  order: 2
  180° Rotation

12. The dashed lines all intersect at the same point.
This point is referred to as the centre of rotation
What is the order of rotation for this figure? 12
What is the angle of rotation for this figure? 30° (360 ÷ 12 = 30°)



Problem

13. **a)** Reflect the figure over the *y*-axis. Label the coordinates of the image after the reflection.
b) Is the design now symmetrical? Explain your thinking.

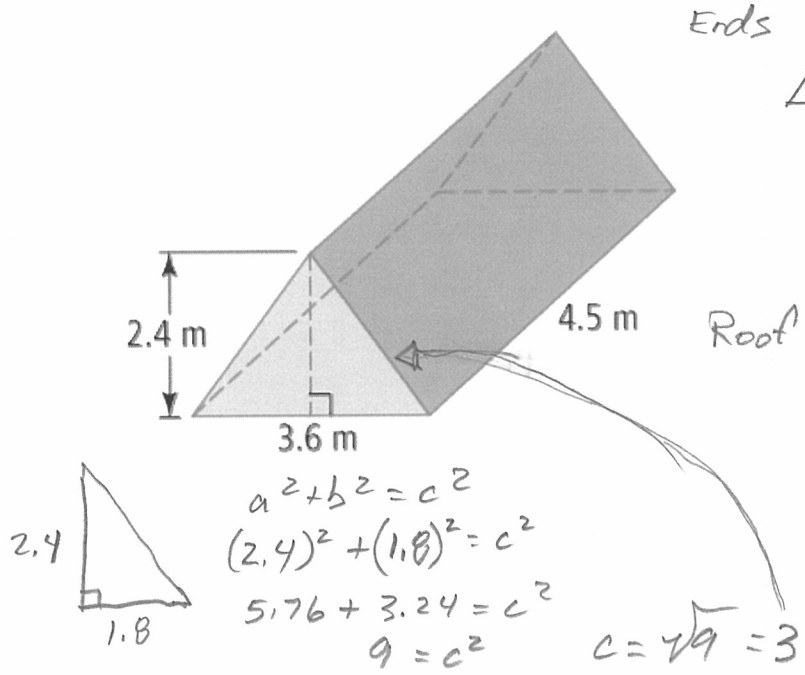


b) The two figures taken together now have vertical line symmetry at the y-axis.
(the individual shapes still have no symmetry)

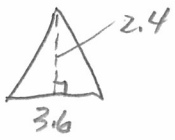
35.64 ÷ 8.1 = 4.4

5 cans will be needed

14. A can of waterproofing spray covers 8.1 m^2. How many cans of waterproofing spray do you need in order to treat the exterior of walls of the tent, excluding the bottom?



Ends



$A = \frac{ab}{2}$

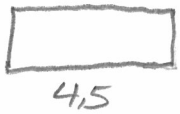
$= \frac{(2.4)(3.6)}{2}$

$= \frac{8.64}{2} = 4.32\ m^2$

two ends → × 2

$8.64\ m^2$

Roof



$A = lw$

$= (4.5)(3)$

$= 13.5\ m^2$

2 sides → × 2

$27\ m^2$

$a^2 + b^2 = c^2$

$(2.4)^2 + (1.8)^2 = c^2$

$5.76 + 3.24 = c^2$

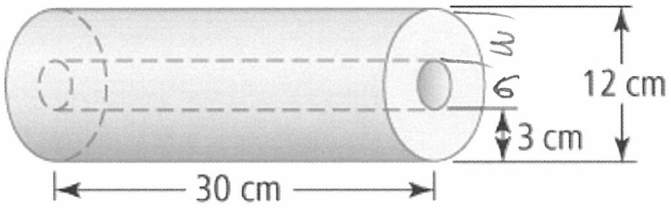
$9 = c^2$

$c = \sqrt{9} = 3$

TOTAL SURFACE AREA =

$35.64\ m^2$

15. The surface area of a metal tube must be coated with lubricant. Determine the total surface area that must be covered, to the nearest tenth of a square centimetre.



$A = \ell w$

$= (30)(37.68)$

$= 1130.4\ cm^2$

Outer "Label"

30 cm

$C = \pi d$

$= (3.14)(12)$

$= 37.68\ cm$

$A = (30)(18.84)$

$= 565.2\ cm^2$

Inner "label"

30 cm

$C = \pi d$

$= (3.14)(6)$

$= 18.84\ cm$

$(\pi r^2 - \pi r^2) \times 2$

$(3.14)(6^2) - 3.14(3^2)) \times 2$

$(113.04 - 28.26) \times 2$

84.78×2

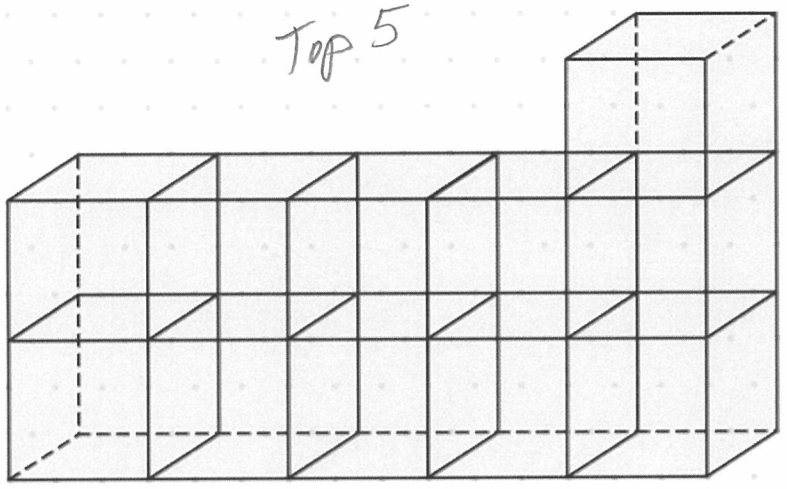
$169.56\ cm^2$

TOTAL SURFACE AREA =

$1130.4 + 565.2 + 169.6 =$

$1865.2\ cm^2$

16. The object is made of 3-cm cubes. What is the exposed surface area of the object if it is sitting on a table?



Area of one face = $3 \times 3 = 9\ cm^3$

TOTAL FACES = 33

So... $33 \times 9\ cm^3 =$

$297\ cm^3$

TOTAL EXPOSED SURFACE AREA