# Unit 3 Study Guide

1. Select all the conditions for which it is possible to construct a triangle.

   A. A triangle with angle measures 75°, 90°, and 32° greater than 180°
   B. A triangle with side lengths 2.5 cm, 11.2 cm, and 7.6 cm largest side is
   C. A triangle with side lengths 5 cm, 5 cm, and 13 cm → not smaller
   D. A triangle with angle measures 20°, 100° and 60° ↗ than the
   E. A triangle with side lengths 7 cm, 14 cm and 7 cm sum of
                                                         the oth

2. Find the values of x and y?

   2.
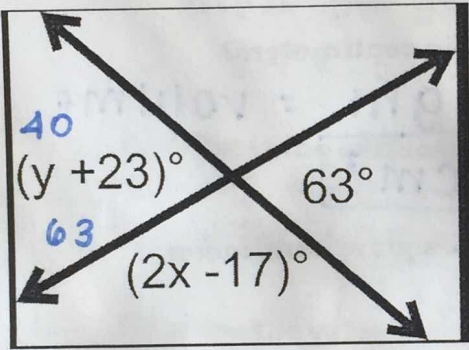
$63 = y + 23$ (vertical)
$\underline{-23 \qquad -23}$
$40 = y$

x = __67__

y = __40__

$\boxed{63} + 2x \boxed{-17} = 180$ (suppleme
                                    tary

$46 + 2x = 180$
$-46 \qquad\qquad -46$

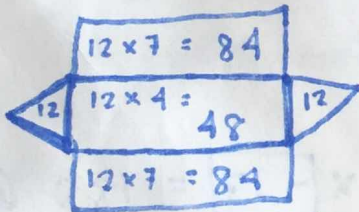$\dfrac{2x}{2} = \dfrac{134}{2}$

$x = 67$

3. Here is a triangular prism.
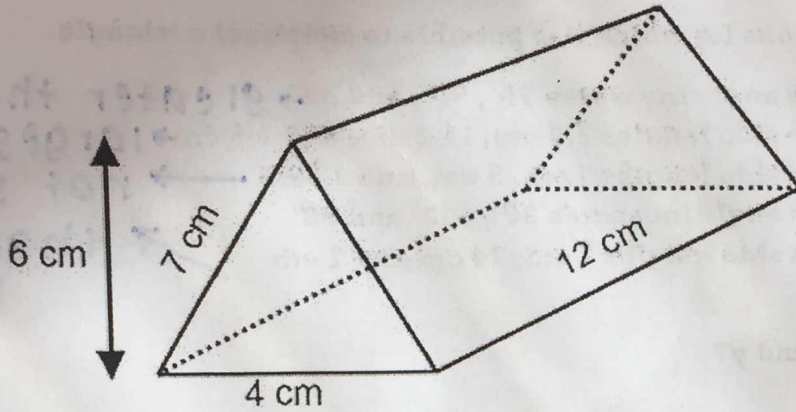
area of base △:

$(4 \times 6) \div 2 = 12$

1. What is the volume of the prism, in cubic centimeters?
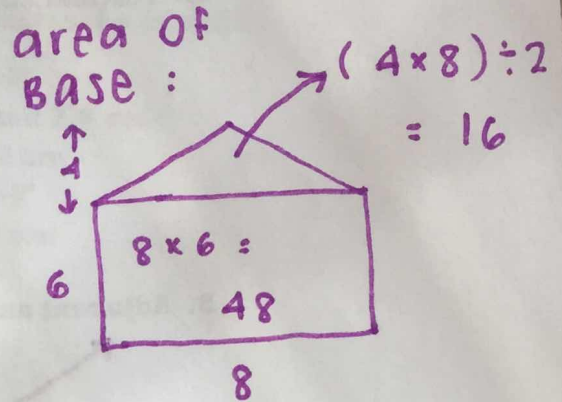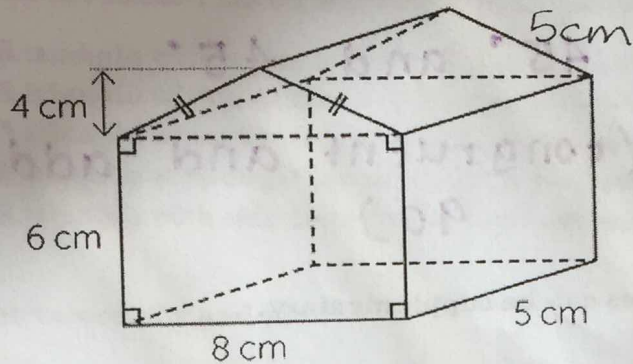
area of base × height = volume

$12 \times 12 = \boxed{144 \text{ cm}^3}$

2. What is the surface area of the prism, in square centimeters?

$12 \times 7 = 84$

$12 \times 4 = 48$ 12   12

$12 \times 7 = 84$

$84 + 84 + 48 + 12 + 12$

$= \boxed{240 \text{ cm}^2}$

3. Here is a 3D-composite figure.

5cm

4 cm

6 cm

8 cm

5 cm

area of base :

$(4 \times 8) \div 2$
$= 16$

$8 \times 6 =$
48

6

8

a. What is the volume of the figure?
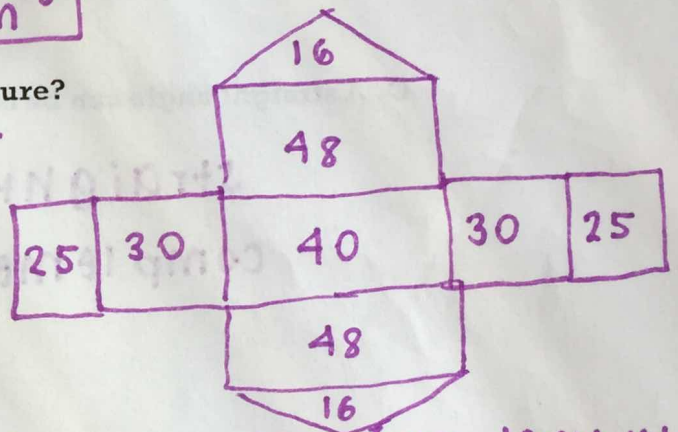
area of base × height = volume

$64 \times 5 = \boxed{320 \ cm^3}$

$48 + 16 = 64$

b. What is the surface area of the figure?

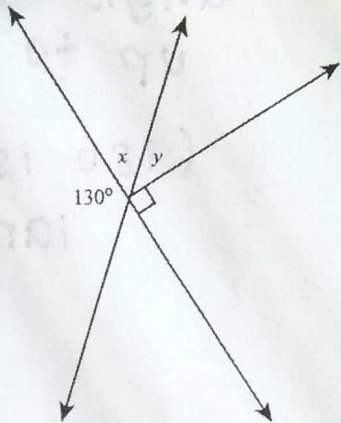$16 + 48 + 40 + 48 + 16 +$
$30 + 30 + 25 + 25$
$= \boxed{278 \ cm^2}$

16

48

25 | 30 | 40 | 30 | 25

48

16

4. What are the values of x and y?

x y

130°

$130 + x = 180$ (supplementary
$-130 \qquad -130$
$\boxed{x = 50}$
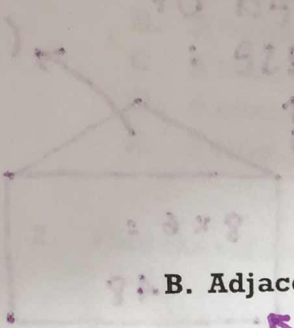
$x + y = 90$ (complementary
$50 + y = 90$
$-50 \qquad -50$
$\boxed{y = 40}$

5. For each statement, provide an example showing that the statement can be true, or an explanation of why the statement can *never* be true.
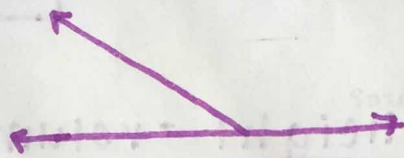
A. Vertical angles can be complementary.

45° and 45°

(congruent and add up to 90)

B. Adjacent angles can be supplementary.

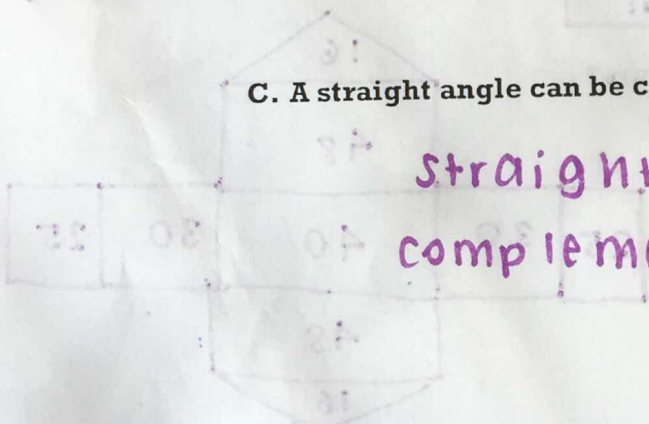→ adjacent and form a straight angle (adds up to 180)

C. A straight angle can be complementary.

straight angle = 180

complementary = more than 1

angle adding up to 90.

(180 is too large).