Warm Up Grade 7

Dec.12

Use mental math

1) 12 x 5

60

2) 151 - 29

151 - 30

121

+1

122

1 too many

3) 24 x 1.5

1 whole half

↓ half ↓ double

12 x 3

36

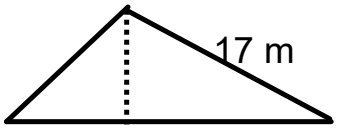
24 + 12

36

From last day

1) Find the height

area = 165 m^2



$h_\Delta = \frac{2(A)}{b}$

$h_\Delta = \frac{2(165m^2)}{15m}$

$h_\Delta = \frac{330m^2}{15m}$

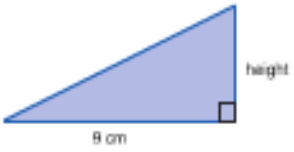
$h_\Delta = 22\,m$

Homework Solutions

Homework Solutions Page 145 -146 # 1, 2, 4

5. Use the given area to find the base or height of each triangle.
How could you check your answers?

a) Area = 18 cm²



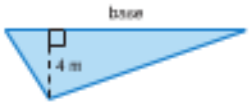
$A = \frac{b \times h}{2}$

$18 = \frac{9x}{2}$

$\frac{36}{2} = \frac{9 \times h}{2}$

$h = 4$

b) Area = 32 m²



$A = \frac{b \times h}{2}$

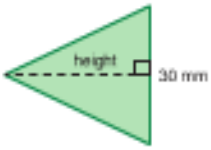
$32 = \frac{b \times 4}{2}$

$64 = b \times 4$

$\frac{64}{4} = b$

$16 = b$

c) Area = 480 mm²



$A = \frac{b \times h}{2}$

$480 = \frac{30x}{2}$

$480 = 15 \times h$

$\frac{480}{15} = h$

$32 = h$

6. Use 1-cm grid paper.

a) Draw 3 different triangles with each base and height.

i) base: 1 cm; height: 12 cm

ii) base: 2 cm; height: 6 cm

iii) base: 3 cm; height: 4 cm

b) Find the area of each triangle you drew in part a.
What do you notice?

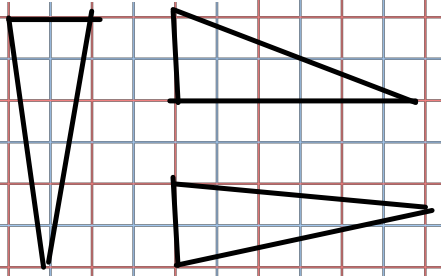
a)

$A = \frac{b \times h}{2}$

$= \frac{1 \times 12}{2}$

$= 6$

b)

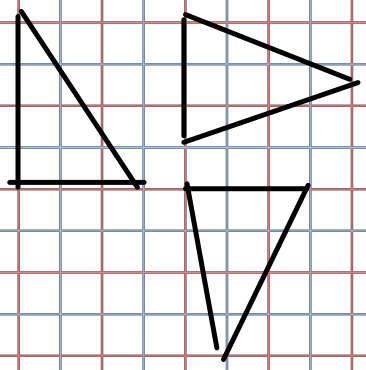


$A = \frac{b \times h}{2}$

$= \frac{2 \times 6}{2}$

$= 6\ cm^2$

c)



$A = \frac{b \times h}{2}$

$= \frac{3 \times 4}{2}$

$\frac{12}{2}$

$= 6\ cm$

7. On 1-cm grid paper, draw two different triangles with each area below.
Label the base and height each time.
How do you know these measures are correct?

a) 14 cm² b) 10 cm² c) 8 cm²

b) $A = \frac{b \times h}{2}$

$10 = \frac{?}{2}$

a) $A = 14$

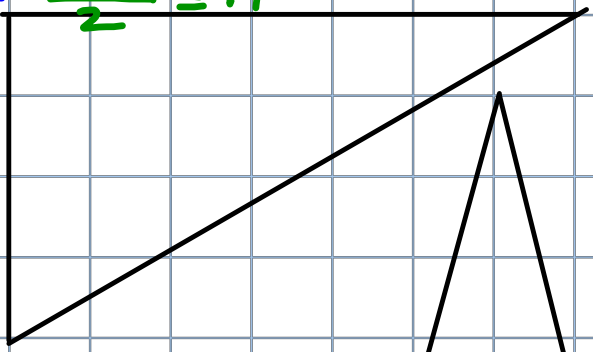
so $b \times h = 28$

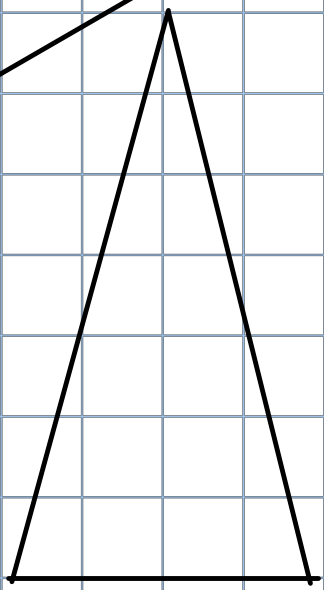
$\frac{b \times h}{2}$ $\frac{(?)}{2} = 14$

1 x 28

2 x 14

4 x 7





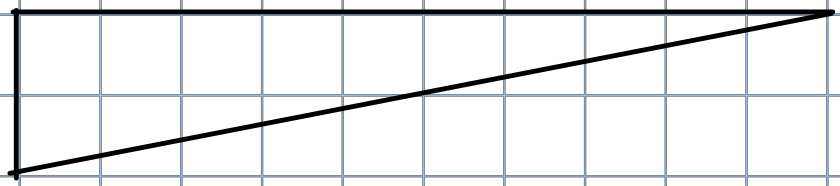
b) $A = 10$

so $b \times h = 20$

1 x 20

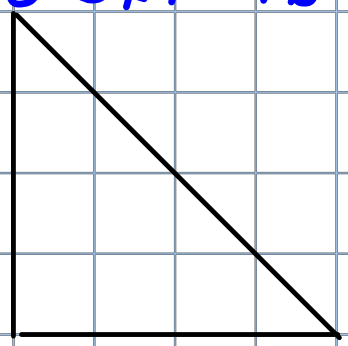
2 x 10

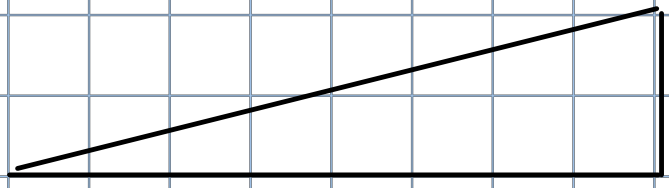
4 x 5



c) $A = 8$

so $b \times h = 16$





8. a) Draw any triangle on grid paper.
What happens to the area of the triangle in each case?
i) the base is doubled
ii) both the height and the base are doubled
iii) both the height and the base are tripled
b) What could you do to the triangle you drew in part a to triple its area?
Explain why this would triple the area.

$b=2, h=4$
$A=\frac{2\times4}{2}$
$=4$

a) $b=4, h=4$
$A=\frac{4\times4}{2}$
$=8$

a) if the base is doubled, the area doubles

c) $b=4 \quad h=8$
$A=\frac{4\times8}{2}$
$=16$

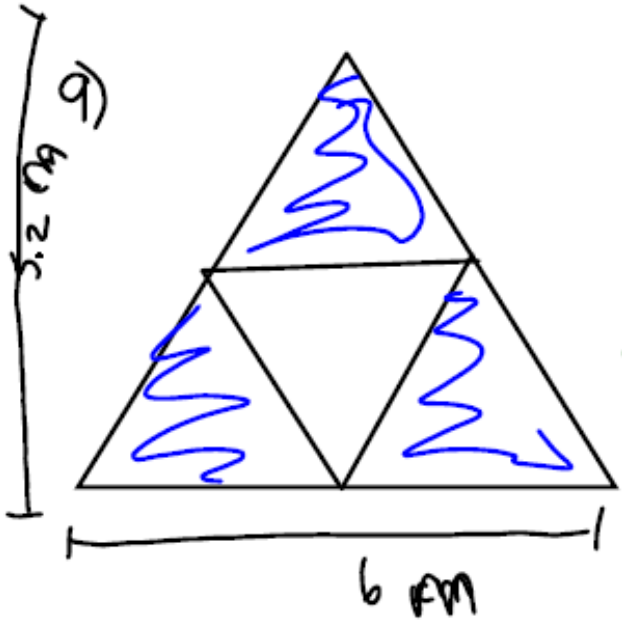
If the base and height both double, then the area is 4 times larger or quadrupled

d) $b=6 \quad h=12$
$A=\frac{b\times h}{2}$
$=\frac{6\times12}{2}$
$=36$

If the base and height are both tripled, then the area is 9 times larger.

e) If you want triple the area triple either the height OR the base

9)

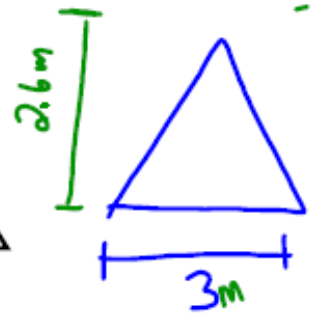


$A_{1\Delta} = \frac{b \times h}{2}$

$= \frac{3m \times 2.6m}{2}$

$= \frac{7.8\ m^2}{2}$

$= 3.9\ m$



a) $A_{3\Delta} = 3 \times 3.9$

$= 11.7 m^2$

b) $11.7 \div 5.5 = 2.12\overline{72}$

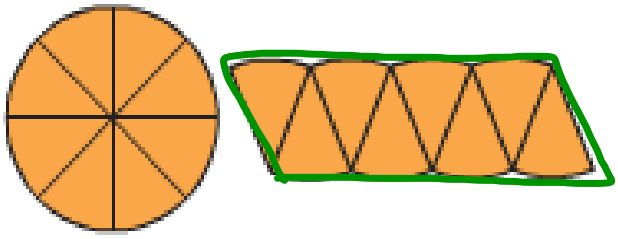
buy 3 cans

Discuss pg. 149 with students

Sector - a part of the circle

Suppose a circle was cut into 8 congruent sectors.

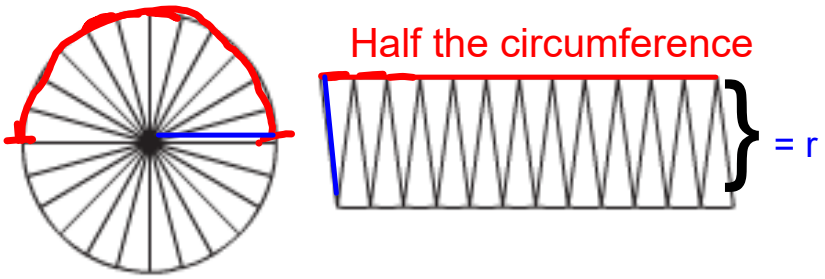
The 8 sectors were then arranged to approximate a parallelogram.



The more congruent sectors we use, the closer the area of the parallelogram is to the area of the circle.

Here is a circle cut into 24 congruent sectors.

The 24 sectors were then arranged to approximate a parallelogram.



Circumference = $2\pi r$

Half of Circumference = $\frac{2\pi r}{2}$

Half of Circumference = $1\pi r$

A=b xh

= (Half the circumference) x (r)

= $\pi r \times r$

= πr^2

where r^2 = rxr

Area of a Circle

We have a formula to find the area of a circle,

Area of Circle = $\pi\ r^2$ → Area of Circle = π x r x r

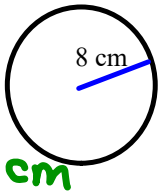
That is the area of a circle is π times the radius squared(which means radius x radius).

π always = 3.14

Examples:

Find the area for each of the following:

(a)



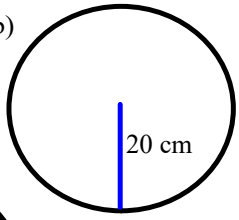
r = 8cm

$A_o = \pi \times r \times r$

$= 3.14 \times 8_{cm} \times 8\ cm$

$= 200.96\ cm^2$

(b)



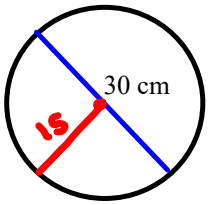
r = 20cm

$A_o = \pi \times r \times r$

$= 3.14 \times 20_{cm} \times 20_{cm}$

$= 1256\ cm^2$

(c)



d = 30 cm ÷2

r = 15cm

$A_o = \pi \times r \times r$

$= 3.14 \times 15_{cm} \times 15_{cm}$

$= 706.5\ cm^2$

Area of a Circle

We have a formula to find the area of a circle,

Area of Circle = πr^2

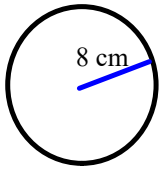
That is the area of a circle is π times the radius squared(which means radius x radius).

π always = 3.14

Examples:

Find the area for each of the following:

(a)

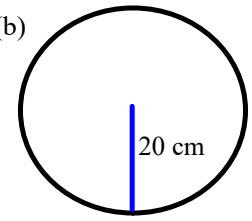


$A = \pi r^2$

$= 3.14 \times 8 \times 8$

$= 200.96 \text{ cm}^2$

(b)

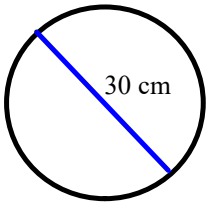


$A = \pi \times r \times r$

$= 3.14 \times 20 \times 20$

$= 1256 \text{ cm}^2$

(c)



$d = 30$

$r = 15$

$A = \pi \times r \times r$

$= 3.14 \times 15 \times 15$

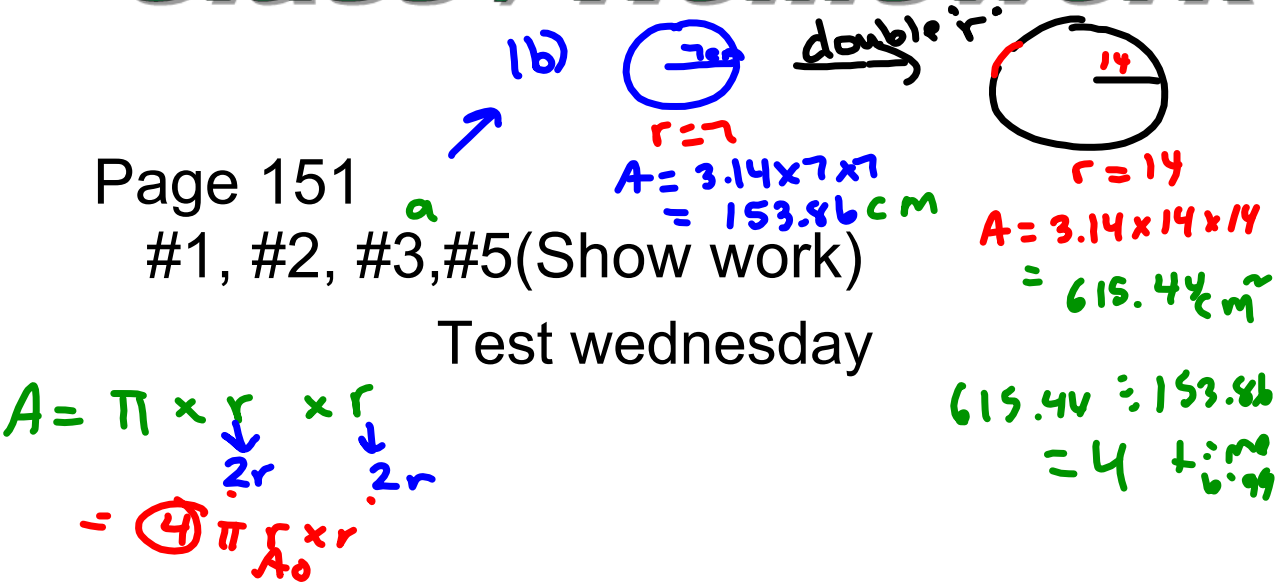
$= 706.5 \text{ cm}^2$

To estimate the area of a circle $\approx 3 \times r \times r$

Class / Homework

Page 151
#1, #2, #3,#5(Show work)

Test wednesday



2a. $A = \frac{b \times h}{2}$

$A = \frac{7 \times 6}{2}$

$A = \frac{42}{2}$

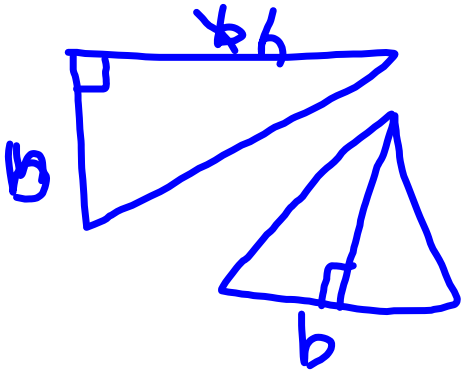
$A = 21 cm^2$

b. $A = \frac{5 \times 5}{2}$

$A = \frac{25}{2}$

$A = 12.5 cm^2$

c. A:



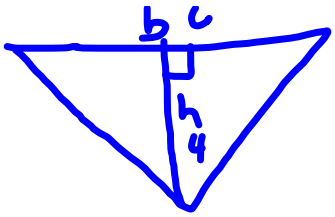
c. $A = \frac{b \times h}{2}$

$A = \frac{6 \times 4}{2}$

$A = \frac{24}{2}$

$A = 12 cm^2$

d.



$A = \frac{6 \times 4}{2}$

$A = 12 cm^2$

e. $A = \frac{5 \times 4}{2}$

$A = \frac{20}{2}$

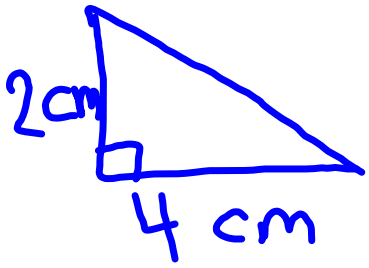
$A = 10 cm^2$

$A = \frac{b \times h}{2}$

$A = \frac{1}{2} b \times h$

F. $A = \frac{4 \times 4}{2}$

$A = 8 cm^2$

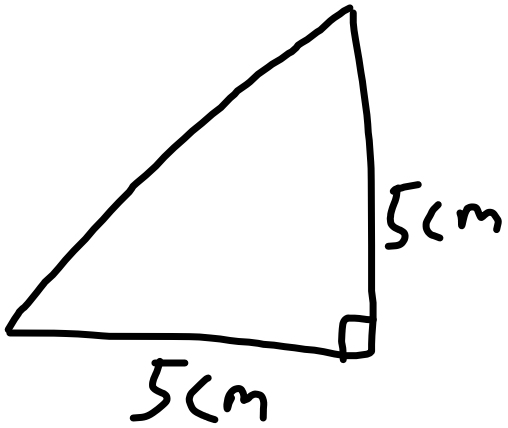


$A = \frac{b \times h}{2}$

$= \frac{4 \times 2}{2}$

$= \frac{8}{2}$

$= 4 cm^2$

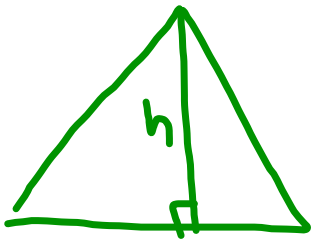


$A = \frac{B \times H}{2}$

$= \frac{5 \times 5}{2}$

$\frac{25}{2}$

$A = 12.5 cm^2$



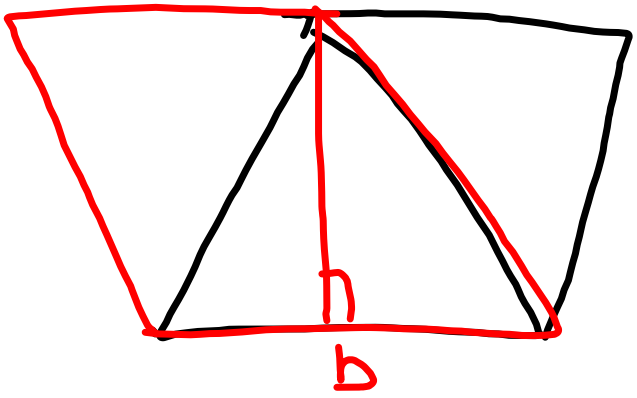
4a $A = \frac{b \times h}{2}$

$A = \frac{7 \times 6}{2}$

$A = \frac{42}{2}$

$A = 21 cm^2$

b.



c. $A = b \times h$

$A = 6 \times 7$

$A = 42 cm^2$

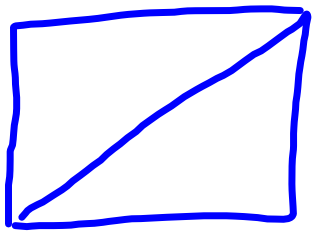
5a - A: 18 cm²
b: 9 cm

$A = \frac{b \times h}{2}$

$(2\times)\ 18 = \frac{9 \times h}{2}\ (2\times)$

$36 = 9 \times h$

$4\ \text{cm} = h$



36cm²

18cm²

b. $A = 32$
$h = 4$

$A = \frac{b \times h}{2}$

$32 = \frac{b \times 4}{2}$

$64 = b \times 4$

$16\text{m} = b$

c. $A = 480\text{m}^2$ (32m)
$b = 30\text{m}$

$480\text{m}^2 = \frac{b \times h}{2}$

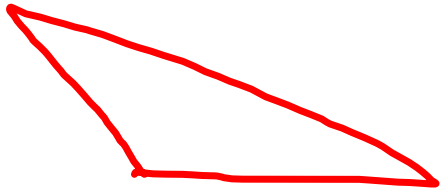
$960\text{m}^2 = 30 \times h$

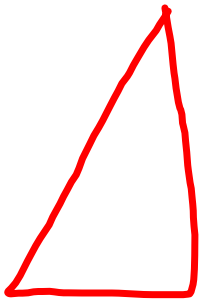
$32\text{m} = h$

6a. i) $6 cm^2$

ii) $6 cm^2$

iii) $6 cm^2$





7. a) 2b x 14h

b) 2b x 10h

c) 2b x 8h