Warm Up Grade 7
Lesson 2 of E-Learning

1. Last spring, 40 cats were adopted from the local animal shelter. This spring, the number of cats adopted dropped by 35%.
How many cats were adopted this spring?

35% of 40 = dropped

0.35 x 40 = 14

40 - 14 = 26 remain at the shelt

2. Use mental math.

a) 20% of 120

10% of 120 = 12

x2 ↓ ↘ x2

20% of 120 = 24

b) 15% of 720

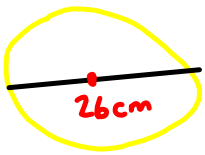
÷2 ↓ 10% of 720 = 72 ÷2

5% of 720 = 36

+

15% of 720 = 108

3) The diameter of a circle is 26 cm, what is the radius?



$r = \frac{d}{2}$ or $r = \frac{1}{2}d$

$= \frac{26cm}{2}$

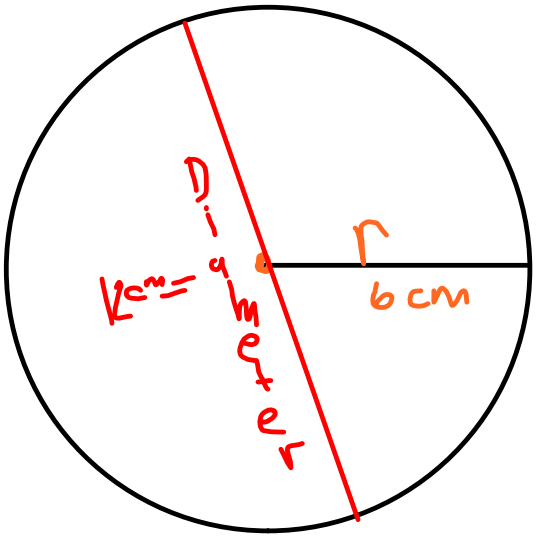
$r = 13$ cm

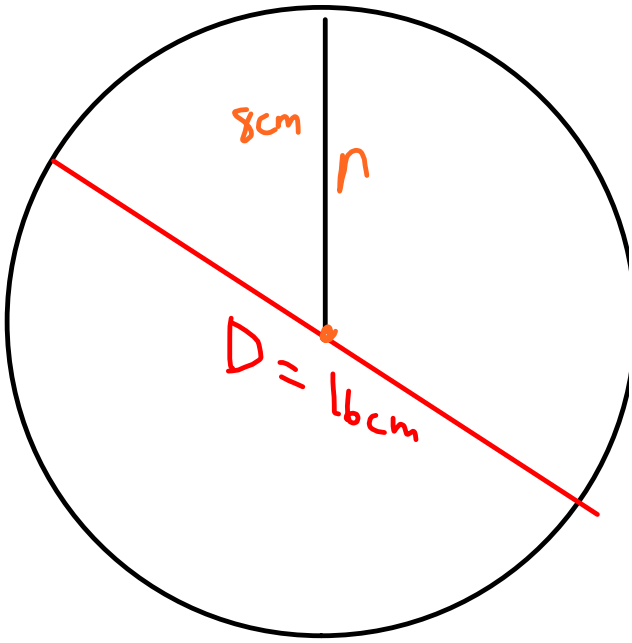
Solutions to classwork

1) Sketch a circle with the following (you don't have a compass home just draw a circle freehand and LABEL the radius and diameter)

rad $d = 2r$

a) radius 6 cm b) 8 cm





2) a circle has a diameter of 3.8 cm. What is the radius?

$r = \frac{1}{2} d$

$r = 1/2 \ (3.8 \text{ cm})$

$r = 1.6 \text{ cm}$

b) A circle has a radius 7.75 cm. What is the diameter?

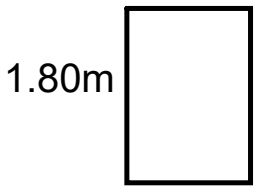
$r = 7.75 \text{cm}$

$D = 2r$

$= 2 \times 7.75 \text{ cm}$

$= 15.5 \text{cm}$

3) A circular tabletop is to be cut from a rectangular piece of wood that measures 1.20m by 1.80m. What is the radius of the largest tabletop that could be cut? Explain your answer and include a sketch.



This has to be the diameter

so

radius = 1/2 x d

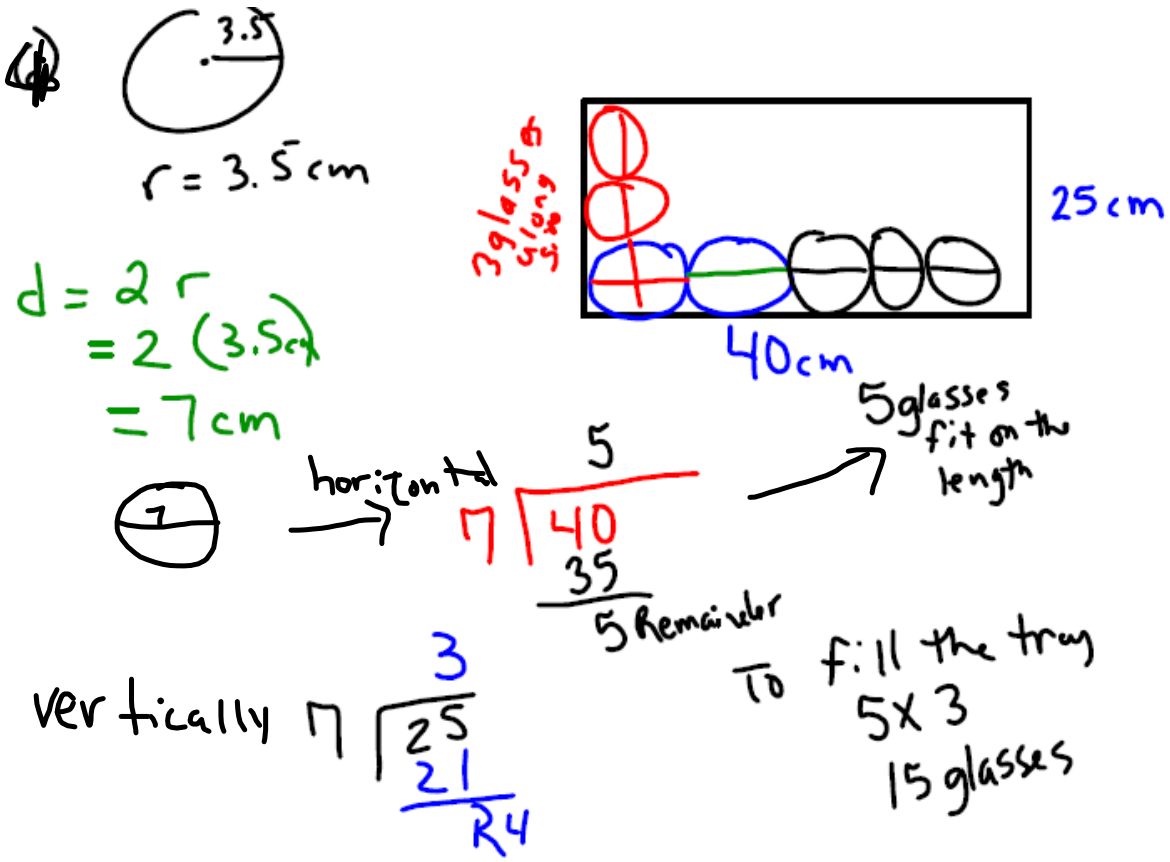
= 1/2 x 1.20 m

= 0.6 m

r = 60 cm

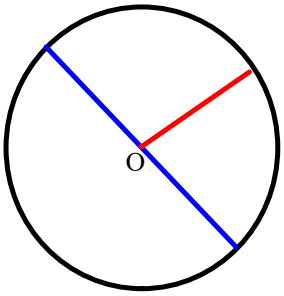
1m = 100cm

4) A glass has a circular base with radius 3.5cm. A rectangular tray has dimensions of 40 cm by 25 cm. How many glasses will fit on the tray?



Remember

Circles and Circumference



A circle is a flat, 2 dimensional shape, where all point are the same distance from the center of the circle. The center of the circle is normally indicated with the letter O.

Any line from the center of the circle to the circle is called the radius.

A line that touches the circle at two points, and passes through the center of the circle is called the diameter.

Do not recopy these notes

What is the relationship between the radius and the diameter?

The radius is half the diameter, or
The diameter is twice the radius.

Circles and Circumference

The perimeter of the circle is called the circumference.
How do you find the circumference?

There is a formula that you use to find the circumference,

Circumference equals the diameter times a constant, pi ,π

π always equals 3.14

We use 3.14 for π, but actually it is an irrational number, 3.141 592 653 589.
An irrational number is a number that never repeats and never terminates, it can not be written as a fraction.

STUDY

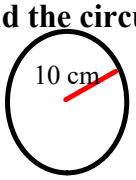
Circumference = π x d

or since d = 2 x radius

= 2 π r (which is 2 x π x r)

Examples:
Find the circumference for each of the following:

(a)



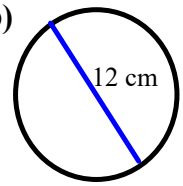
r = 10 cm

C = 2π r

= 2 x 3.14 x 10 cm

= 62.8 cm

(b)



D = 12cm

C = π d

= 3.14 x 12 cm

= 37.68 cm

(c) Circle with a radius of 4

r = 4 units

C = 2π r

= 2 x 3.14 x 4 units

= 25.12 units

How would you estimate the circumference of a circle?

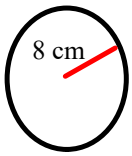
Multiply the diameter by 3 instead of 3.14

round π to 3

Examples:

ESTIMATE the circumference for each of the following:

(a)



Estimate

$C = 2\pi r$

$\approx 2 \times 3 \times 8$ cm

$\approx$ 48 cm

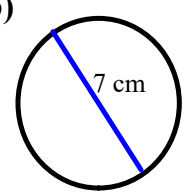
Actual

$C = 2\pi r$

$= 2 \times 3.14 \times 8$ cm

$= 50.24$ cm

(b)



Estimate

$C = \pi d$

$\approx 3 \times 7$ cm

$\approx$ 21 cm

Actual

$C = 2\pi r$

$= 3.14 \times 7$ cm

$= 21.98$ cm

Class / Homework

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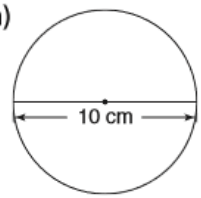
1, #2, #4, #5, #6,

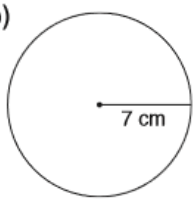
On next slides in PDF file

1. Calculate the circumference of each circle.
Give the answers to two decimal places.
Estimate to check the answers are reasonable.

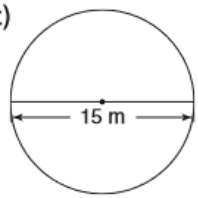
a)



b)

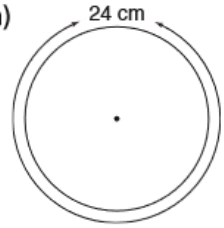


c)

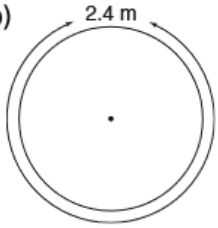


2. Calculate the diameter and radius of each circle.
Give the answers to two decimal places.
Estimate to check the answers are reasonable.

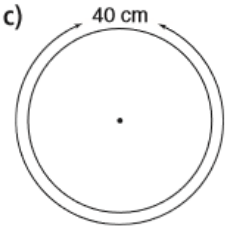
a)



b)



c)



3. When you estimate to check the circumference, you use 3 instead of π.
Is the estimated circumference greater than or less than
the actual circumference?
Why do you think so?

4. A circular garden has diameter 2.4 m.
a) The garden is to be enclosed with plastic edging.
How much edging is needed?
b) The edging costs $4.53/m.
What is the cost to edge the garden?

5. a) Suppose you double the diameter of a circle.
What happens to the circumference?
b) Suppose you triple the diameter of a circle.
What happens to the circumference?
Show your work.

6. A carpenter is making a circular tabletop with circumference 4.5 m.
What is the radius of the tabletop in centimetres?

Recall: 1 m = 100 cm

7. Can you draw a circle with circumference 33 cm?
If you can, draw the circle and explain how you know its circumference is correct.
If you cannot, explain why it is not possible.

8. **Assessment Focus** A bicycle tire has a spot of wet paint on it.
The radius of the tire is 46 cm.
Every time the wheel turns, the paint marks the ground.
a) What pattern will the paint make on the ground as the bicycle moves?
b) How far will the bicycle have travelled between two consecutive paint marks on the ground?
c) Assume the paint continues to mark the ground.
How many times will the paint mark the ground when the bicycle travels 1 km?
Show your work.