

TIMSS 2023 – Restricted Use Items

Mathematics Grade 8

Benchmark 2

Content Domain: Algebra

Cognitive Domain: Reasoning

Eric has 50 minutes to make as many model planes as he can.
It takes Eric 5 minutes to make Model A and 3 minutes to make Model B.

A. Eric wants to make 5 of Model A and 10 of Model B.

Explain why he will **not** have enough time to complete these models.

it will take him 55 minutes

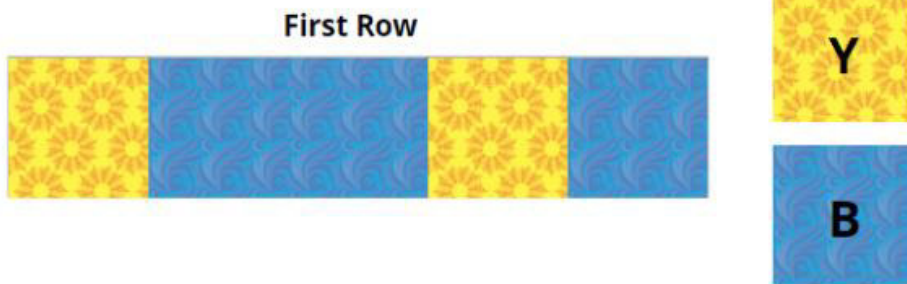
Benchmark 2

Content Domain: Number

Cognitive Domain: Applying

There are 5 squares in the first row of a quilt. The ratio of yellow (Y) to blue (B) squares is equivalent to 4:6.

Drag squares to the row to show a ratio equivalent to 4:6.



Benchmark 3

Content Domain: Algebra

Cognitive Domain: Applying

$$3x + 4y = 13$$

$$2x - y = 5$$

Find the values of x and y that make both equations true.

$$x = \boxed{3}$$

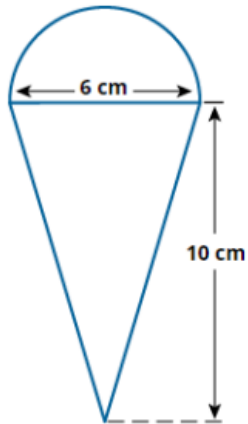
$$y = \boxed{1}$$

Benchmark 3

Content Domain: Geometry and Measurement

Cognitive Domain: Applying

The design for an ice cream shop's logo is a semicircle on top of an isosceles triangle with the dimensions shown below.



The shop wants to make a larger version of the logo using a similar triangle with a height of 250 cm.

What will be the diameter of the semicircle for the larger version?

Answer: cm

Benchmark 4

Content Domain: Data and Probability

Cognitive Domain: Knowing

Jenny has a bag of marbles with:

- 50 red
- 50 yellow
- 40 blue
- 60 green

She picks one marble out of the bag at random.

A. What is the probability Jenny will pick a marble that is **not** green?

Answer:

Benchmark 4

Content Domain: Number

Cognitive Domain: Applying

The value of x is **proportional** to the value of y .

Complete the table.

x	y
6	4
3	2
12	8