Grade 7 Regionals
Question 1

There are 19 lights along the north side of the oil rig.

Courtney checked some of the bulbs to make sure they were working using the following system:

- As she made her way across the north side moving east to west, she checked the first bulb and then every other bulb for the full length of the north side.

A few hours later, Brian checked some of the bulbs along the north side again using the following system:

- As he made his way across the same north side but this time moving west to east, he checked the first bulb and then every third bulb for the full length of the north side.

When Courtney and Brian were done, how many bulbs had ***NOT*** been checked?

Grade 7 Regionals
Question 2

On July 1 in Newbury, the sun will rise at 04:53 am and set at 9:25pm. The local "noon" will be exactly halfway between these two times.

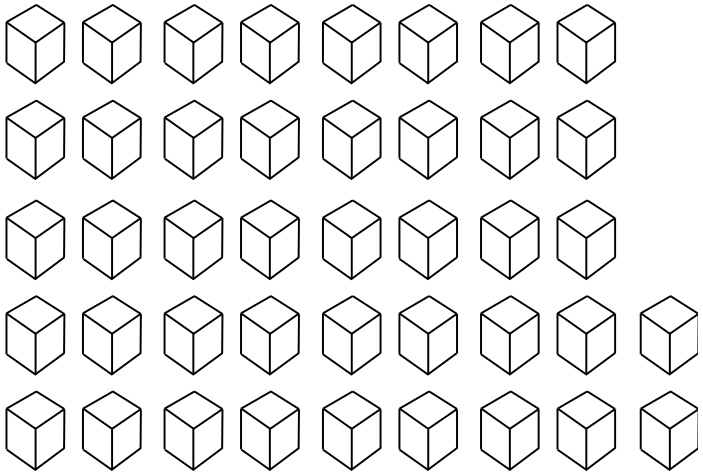
At what time will the local "noon" be in Newbury on July 1?

Grade 7 Regionals
Question 3

Three pumpkins are weighed two at a time in all possible ways. The mass of the pairs of pumpkins are 12 kg, 13 kg, and 15 kg.

How much does the lightest pumpkin weigh?

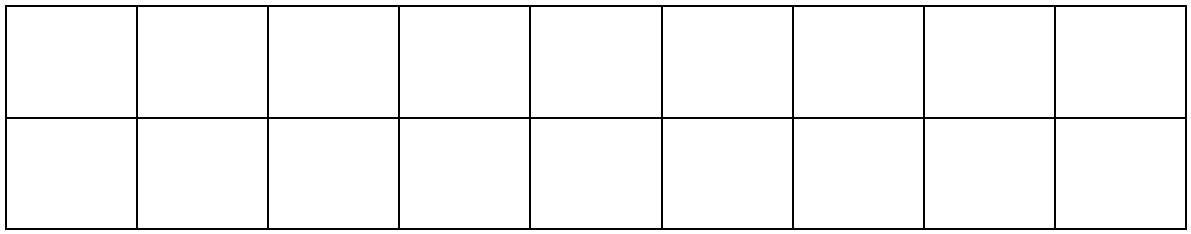
Grade 7 Regionals
Question 4



Mike has 42 identical cubes, each with the edge 1 cm long.
He used all 42 uncut cubes to construct a rectangular prism.
The perimeter of the base of that rectangular prism is 18 cm.

How many cubes high is the prism?

Grade 7 Regionals
Question 5



In some of the small squares of a 2x9 grid there are coins placed.
Each small square either contains a coin or has a common side with a square containing a coin.

What is the minimum number of coins located in the grid?

Grade 7 Regionals
Answer Key

1. **6**

2. **1:09** ***OR*** **13:09**

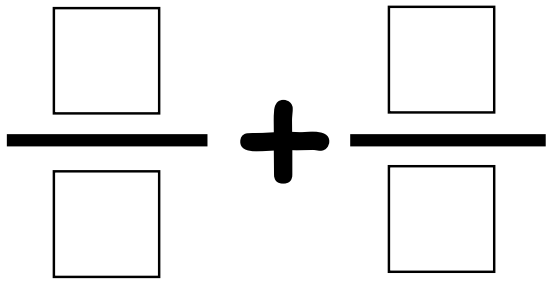
3. **5**

4. **3**

5. **5**

Grade 8 Regionals
Question 1

If each of the four numbers 3, 4, 6, and 7 is placed in one of the boxes below, what is the largest possible sum of the fractions shown?

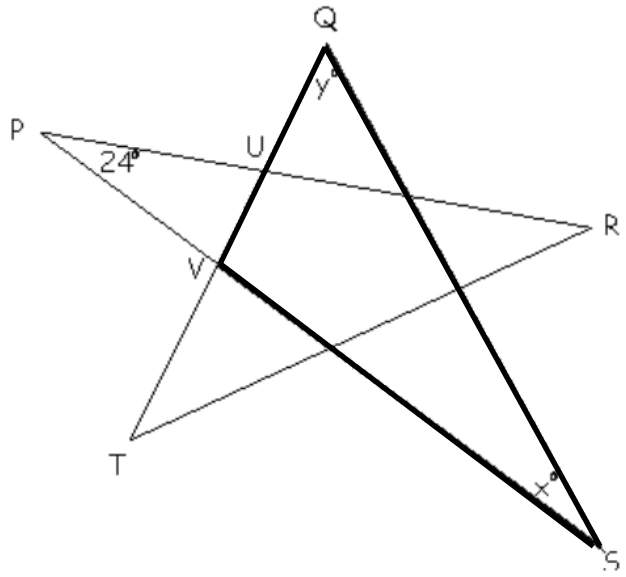


A) $\frac{19}{12}$ B) $\frac{13}{7}$ C) $\frac{5}{2}$ D) $\frac{15}{4}$ E) $\frac{23}{6}$

Grade 8 Regionals
Question 2

In the diagram below:

- PR, PS, QS, and RT are straight line segments.
- QT intersects PR and PS at U and V respectively.



If PU = PV

∠ UPV = 24°

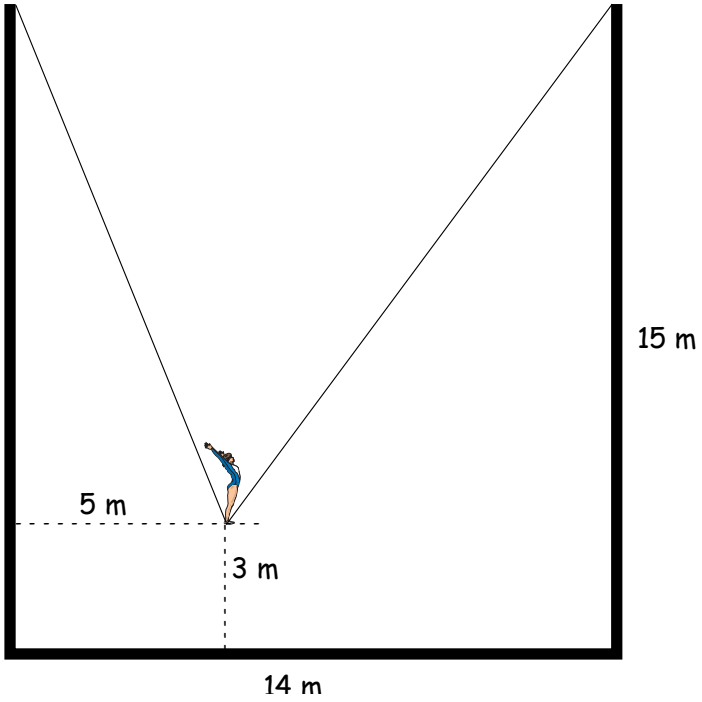
∠ PSQ = x°

∠ TQS = y°

What is the value of $x^\circ + y^\circ$?

Grade 8 Regionals
Question 3

A "slackrope" walker is much like a tightrope walker except that the rope on which one performs is not pulled tight.
Paula, a slackrope walker, has a rope tied to two 15m high poles which are 14 m apart. When she is standing on the rope 5m away from one of the poles, she is 3m above the ground.
How long is the rope?



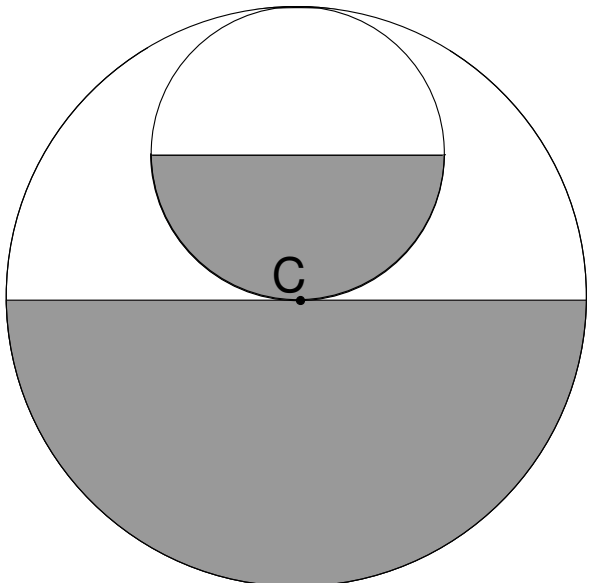
Grade 8 Regionals
Question 4

In the diagram below, each circle is divided into two equal areas.

- C is the centre of the large circle
- The area of the larger circle is 200.96 cm^2.

What is the total area of the shaded regions?

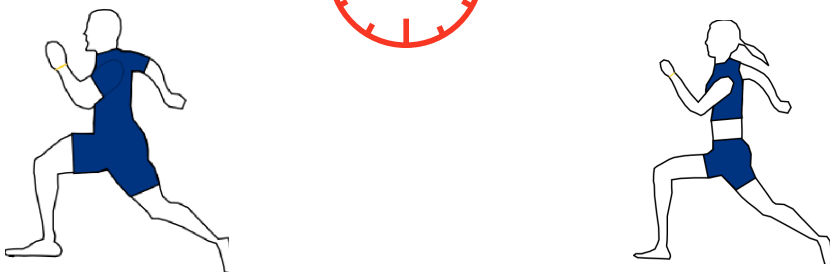
- Use 3.14 for pi.
- Round your final answer to the nearest tenths place.



Grade 8 Regionals
Question 5

Wonder Woman gives Superman a five second head start in a 1 km race.
If Wonder Woman runs 5 km per minute and Superman runs 3 km per minute……

- The winner wins the race by how many seconds?



Grade 8 Regionals
Answer Key

Problem 1: **E** *or* $\frac{23}{6}$

Problem 2: **78**

Problem 3: **28**

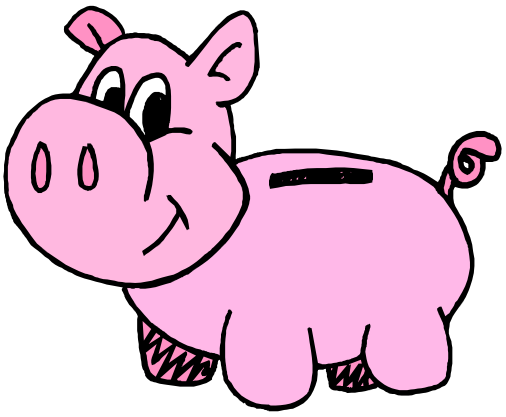
Problem 4: **125.6**

Problem 5: **3**

Grade 9 Regionals
Question 1

Your piggy bank contains quarters (worth $0.25 each), nickels (worth $0.05 each) and pennies (worth $0.01 each).

- **The value of the quarters is $10.00.**
- **The value of the nickels is $10.00.**
- **The value of the pennies is $10.00.**

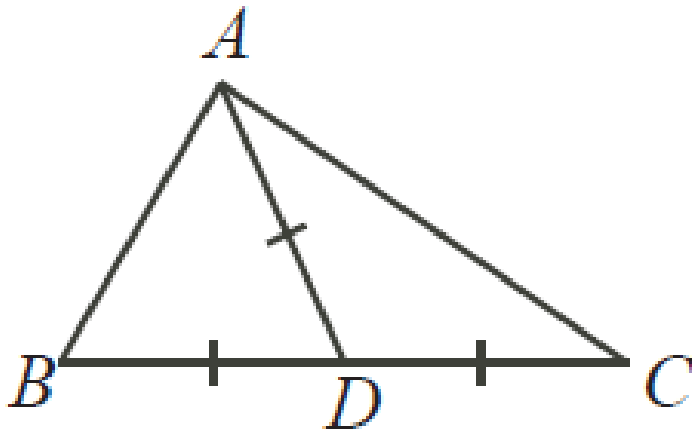


If you randomly choose one coin from the piggy bank, what is the probability that you will choose a quarter?
Hint: Answer must be in simplest fraction form.

Grade 9 Regionals
Question 2

In the following diagram,

- $AD = BD = CD$



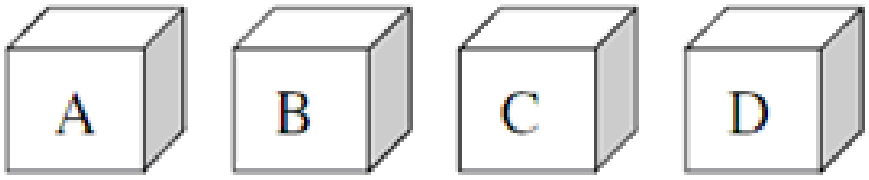
- $\angle BCA = 40°$

What is the measure of angle $\angle BAC$?

- Note: Diagram not drawn to scale

Grade 9 Regionals
Question 3

Taro keeps his calculator collection in the four boxes shown below. There are three times as many calculators in box D as there are in box B. A has twice as many calculators as box C. Box C has five fewer calculators than box B.



If there are a total of 48 calculators in the four boxes, how many calculators are there in box B.

Grade 9 Regionals
Question 4

The surface area of a large cube is $5400cm^2$. This cube is cut into a number of identical smaller cubes. Each smaller cube has a volume of $216cm^3$.

How many smaller cubes are there?

Grade 9 Regionals
Question 5

If a rope is tied with 5 knots, the length will be 39.5cm. If the same length of rope is tied with 13 knots, the length will be 11.5cm. If the rope is tied with 8 knots the rope has a length of 29cm.

What is the original length of the rope, assuming all knots are tied with the same tightness?

Grade 9 Regionals
ANSWERS

1. 1/31

2. 90

3. 9

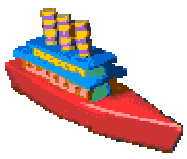
4. 125

5. 57

Challenge Round
Question 1

Ships are not legally allowed within 500 m of the oil rig platform without first going through checklists and finally asking the platform for permission to enter. Five ships approached the rig and radioed requests for permission to enter the platform. *Joides Resolution's* request was ahead of *Chikyu. Kalluk's* request followed *Peregrine 1*. *Peregrine 1's* request followed *Chikyu* but was ahead of *Ocean Clipper.*

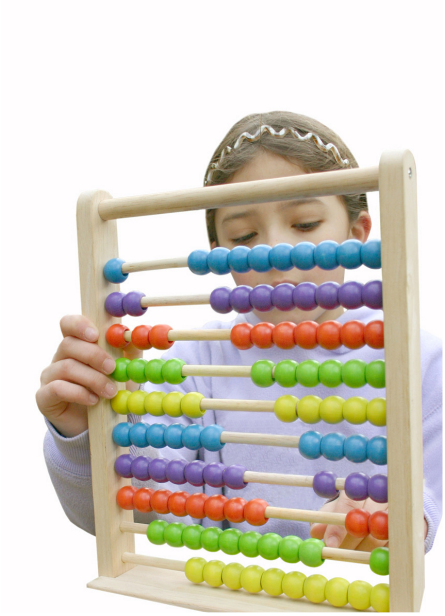



Which ship made the second request?

Challenge Round
Question 2

Sally picks four consecutive positive integers. She divides each integer by 4, and then adds the remainders together.



The sum of the remainders is:____

Challenge Round
Question 3

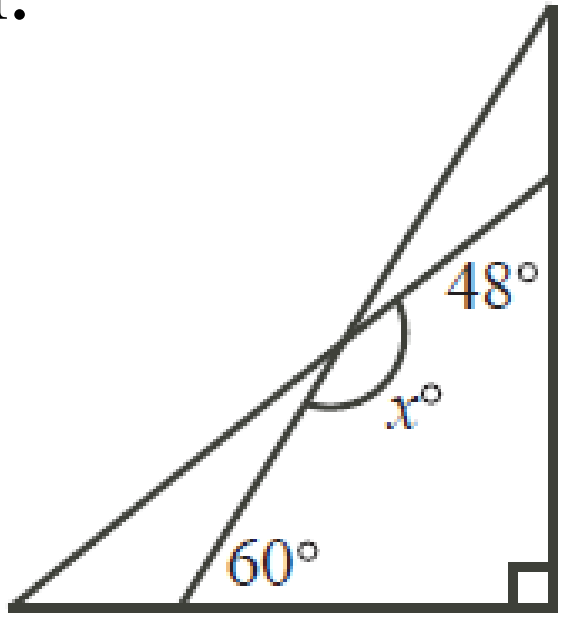
Students at Bluenose Jr. High held three spirit days recently. Of the 40 ninth graders at the school:

- 14 participated in Crazy Hair Day
- 19 participated in Pajama Day
- 22 participated in Twin Day
- 5 of the students who participated in Crazy Hair Day also participated in Pajama Day
- 10 of the students who participated in Pajama Day also participated in Twin Day
- 7 of the students who participated in Twin Day also participated in Crazy Hair Day
- 3 students participated in all three spirit day events

How many ninth graders at Bluenose Jr. High did not participate at all in the spirit days?

Challenge Round
Question 4

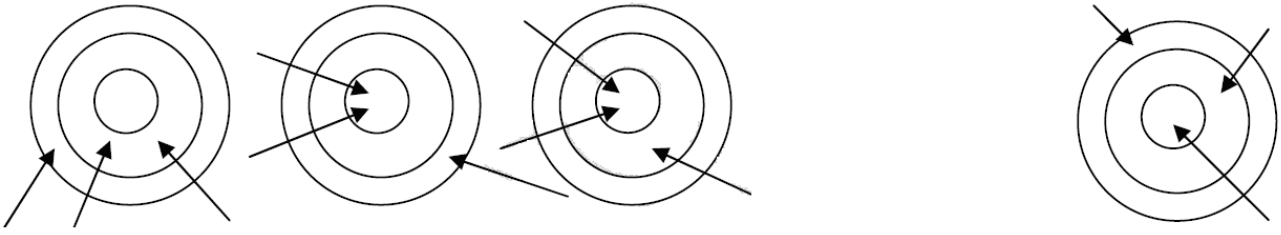
Find the value of x in the given diagram.



Note: Diagram is not drawn to scale.

Challenge Round
Question 5

Jeffrey throws three darts at each of four identical targets. He scores 29 points on the first target, 43 on the second and 47 on the third. How many points does Jeffrey score on the last target?



Challenge Round
ANSWERS

1. Chikyu

2. 6

3. 4

4. 162

5. 36