Mathematics

Delprov D

Årskurs

6

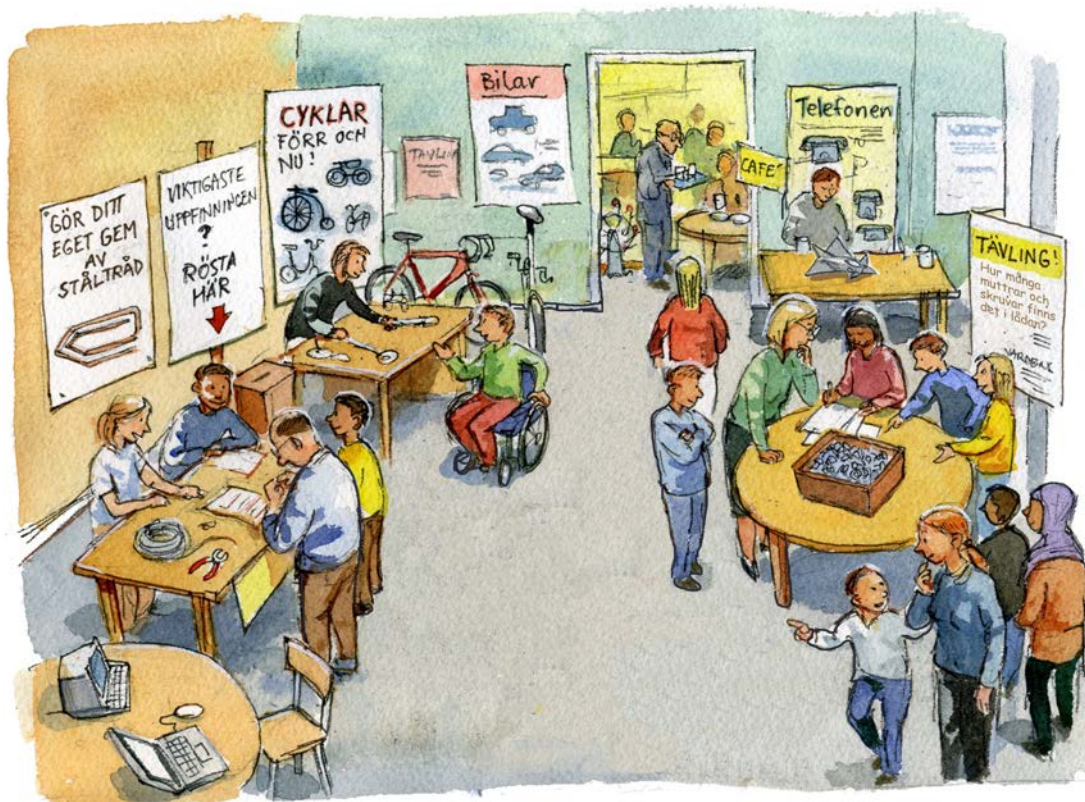*Skolverket*

For the tasks in this part, you must show your working. Your working must be clear enough so that another person can read and understand what you mean.

If you make calculations on the calculator they must be shown on the paper. You can be given points for partially solving a task.

The teacher will assess:
- How you solve the tasks.
- The knowledge you show about mathematical concepts.
- Which methods you choose and how you use them.
- How well you show your working.
- How well you use mathematical language.

The pupils in the school have had a day on the theme of inventions and then organise an exhibition for their families. The visitors are shown many different examples of inventions that the pupils have come up with themselves and others that they have read about. At the exhibition there are also different competitions and games similar to those that the pupils did on invention day.

At one table, the visitors can try to make paper clips out of a long steel wire. At another table, they are asked to estimate how many nuts, screws and bolts there are in a large box.

The pupils have also organised a small café. The money they receive during the two days of the exhibition is going to charity.

26. Alice and Robin are selling tickets for the exhibition. (2/0/0)
On the Saturday they sell 86 tickets and on the Sunday they sell 79 tickets.
One ticket costs SEK 30.
How much money do they make in total?
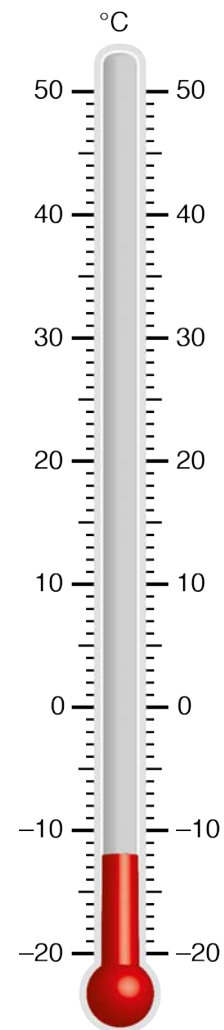*Show your working.*

°C

27. a) There is a thermometer in the exhibition. (1/0/0)
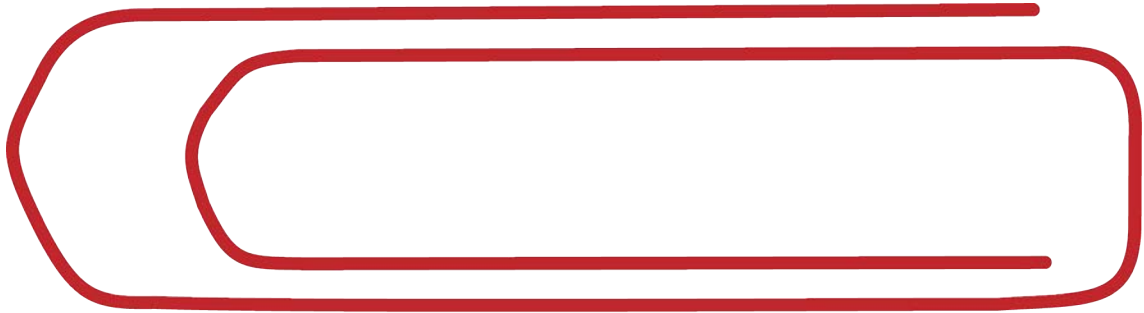Which temperature does the thermometer indicate?

50 — — 50

Answer:_____°C

40 — — 40

b) It is 34 degrees warmer in the room (2/0/0)
than what the thermometer indicates.
How warm is it in the room?
Show your working.

30 — — 30

20 — — 20

10 — — 10

0 — — 0

−10 — — −10

−20 — — −20

28.

The picture shows a paper clip to scale 5:1

a) How long is the paper clip in reality?   (2/0/0)
    Show your working.

b) You need 16 cm of steel wire to make a paper clip.   (2/0/0)
    How many paper clips can you make out of 12 m of steel wire?
    Show your working.

29. The images show what the first bicycles looked like. (1/1/0)

Adult bicycle

Child bicycle

Large wheel circumference: 3.93 m   Large wheel circumference: 2.71 m

The large wheel on each bicycle makes a whole turn every time you pedal.
Samira pedals 50 times on an adult bicycle and Viktor pedals 50 times
on a child bicycle. How much further does Samira get on the adult bicycle
compared to Viktor on the child bicycle?
Show your working.

30. During 1 minute, around 150 million e-mails are sent worldwide. (1/1/0)
How many e-mails are sent during one hour?
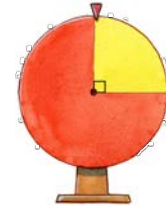Give your answer in billions.
Show your working.

31. At the exhibition there are three different games
to choose from.   (0/2/0)

Game 1
Spin the wheel of fortune.
If it stops on yellow, you win.

Game 2
Throw a 6-sided die. If it falls on 4, you win.

Game 3
Pick a marble without looking.
If you pick a blue one, you win.

In which game do you have the greatest chance of winning?
Explain your answer.

32.   Robin lays out pebbles in a pattern.

Figure 1   Figure 2   Figure 3   Figure 4

a)   How many pebbles are there in Figure 4 if the pattern continues   (1/0/0)
     to increase in the same way?

     Answer:_____

b)   How many pebbles are there in Figure 8?   (1/1/0)
     Show your working.

c)   You only know the number of the figure.   (0/1/1)
     How can you then determine the number of pebbles in the figure?
     Explain in words or use a formula.

33. The money from the exhibition is going to charity.
The pupils vote on which charity is to receive money.

Here are the results:
Save the Oceans   16 votes
Friends of the Forest   20 votes
Animal Protection Society   44 votes

a) Which percentage of the pupils voted for "Save the Oceans"?   (0/2/0)
Show your working.

b) The pupils have raised SEK 20 960.   (0/1/1)
They decide that the money will be distributed according
to the number of votes for each charity.
How much money do they give to the "Animal Protection Society"?
Show your working.

34. In a box there are nuts, bolts and screws. (0/1/2)

There are:
- 3 times as many screws as nuts
- 32 more bolts than nuts
- a total of 782 nuts, screws and bolts

Nut   Bolt   Screw

How many screws are there in the box?
Show your working.

PRIM
gruppen