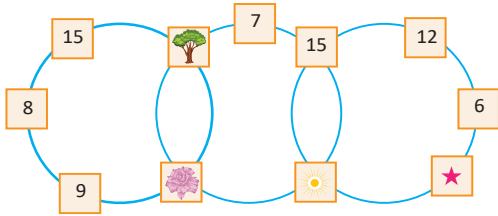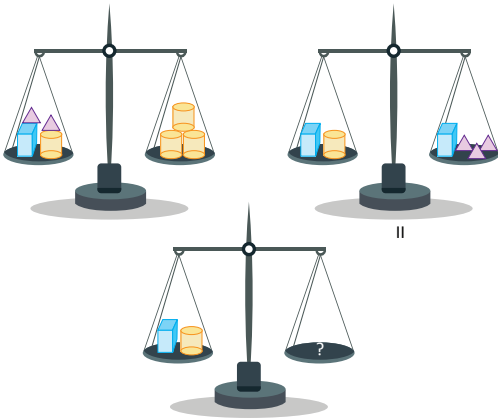## GRADE 3-4

The sum of the 5 numbers written on each circle is 60.

What number should be placed in the box marked with "★"? **(7 points)**

A) 17   B) 19   C) 27   D) 29
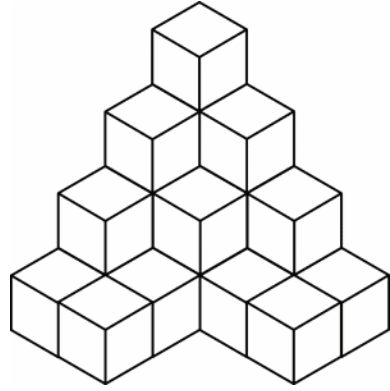
Q2:

Scale I and Scale II are balanced as shown in the diagram.

In the III. diagram, how many ▲shapes should replace the '?' ? **(7 points)**

A) 5   B) 6   C) 7   D) 11

GRADE 5-6

Q1:
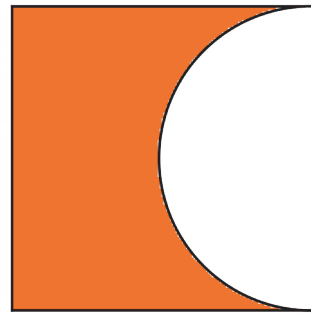

How many unit cubes are there in this shape? **(7 points)**

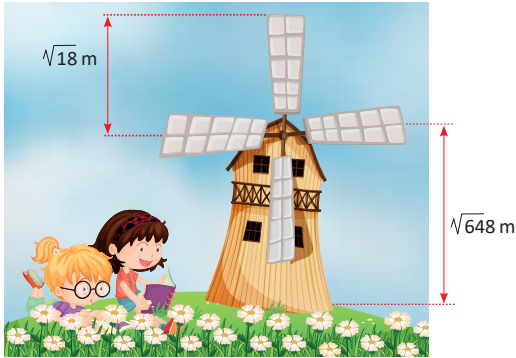A) 18   B) 22   C) 24   D) 30

Q2:

A circular segment, whose diameter is equal to one side of a square with a perimeter of 24 cm, is cut out from the square.

What is the perimeter of the remaining part?

(Take π as 3.) **(7 points)**

A) 21   B) 24   C) 27   D) 30
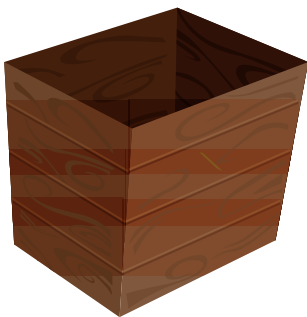
Q1:

$\sqrt{18}$ m

$\sqrt{648}$ m

In the figure, a windmill is shown with the point where the blades meet and its height from the ground.

Given that each blade of the windmill is $\sqrt{18}$ meters long, how far is the closest point of the blades to the ground? (7 points)

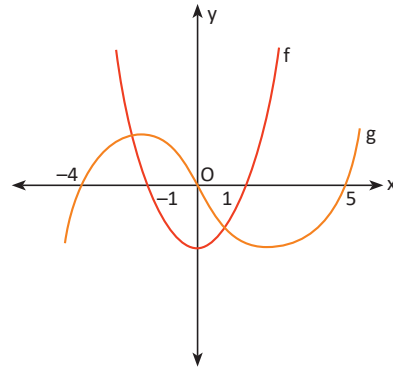A) $5\sqrt{2}$ B) $10\sqrt{2}$ C) $15\sqrt{2}$ D) $25\sqrt{2}$

Q2:

An open-top wooden box in the shape of a cube is intended to be made as shown above. Given that a total of 90 cm² of wood is used, what is the length of one edge of this box? (7 points)

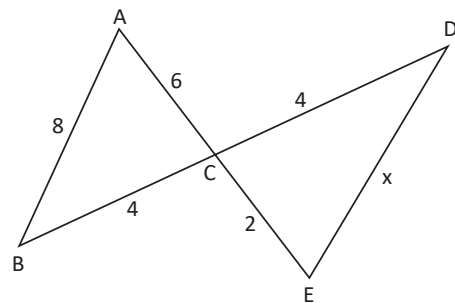A) $\sqrt{15}$ B) $\sqrt{18}$ C) $\sqrt{21}$ D) $\sqrt{24}$

Q1:

The graphs of the functions f(x) and g(x) are given.

What is the sum of the natural numbers that satisfy the inequality f(x).g(x) < 0? (7 point)

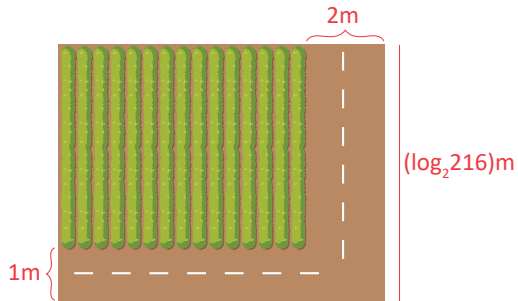A) 15   B) 14   C) 9   D) 6   E) 3

Q2:

In the figure, the points A, C, E and B, C, D are collinear.

Given the side lengths in centimeters, what is the length of x (the segment DE)? (7 point)

A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) $2\sqrt{6}$

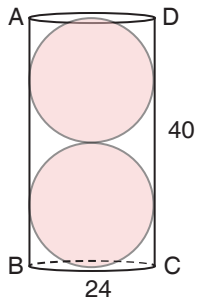   D) $4\sqrt{3}$ E) $4\sqrt{6}$

Q1:

2m

(log$_2$216)m

1m

A square field has a side length of log$_2$ 216 meters. A walking path is to be built along the sides of the field, as shown in the image, with widths of 1 meter and 2 meters.

Given that log$_2$3 ≈ 1.6, what is the total area of the walking path in square meters? (7 points)

A) 22,6   B) 21,4   C) 19,8   D) 18,2   E)16,4

Q2:

A   D

40

B   C

24

In the figure above, the rectangle ABCD and two circles with diameters AD and BC are given.

If IDCI = 40 cm and IBCI = 24 cm in the figure above, what is the perimeter of the shaded region? ($\pi = 3$) **(7 points)**

A) $\dfrac{32\pi}{3}$ B) 32π C) 40π

D) $\dfrac{64\pi}{3}$ E) 64π