Level 3 Essential Application of Number Skills Confirmatory test

Maximum duration: 60 minutes

This confirmatory test consists of 30 multiple choice questions.

Sample Assessment - 4

Questions 1 to 6 are about preparing a playing area.

1.   A playground is to be made on a plot of land.

        A drawing of the plot of land is made to a scale of 1:200

        The width of the plot of land is 19 metres.

        What is the width of the plot of land on the scale drawing?

        A   0.95 cm
        B   3.8 cm
        C   9.5 cm
        D   38 cm

2.   Some top soil is needed for the plot of land.

        The length of the plot of land is 30 m and the width is 19 m.

        The top soil must cover the plot of land to a depth of 20 cm.

        1 m^3 of top soil weighs 1.8 metric tonnes.

        How many metric tonnes of top soil are required?

        A   63.3 tonnes
        B   114.0 tonnes
        C   205.2 tonnes
        D   29 520 tonnes

3.   Grass will be grown on part of the plot of land.
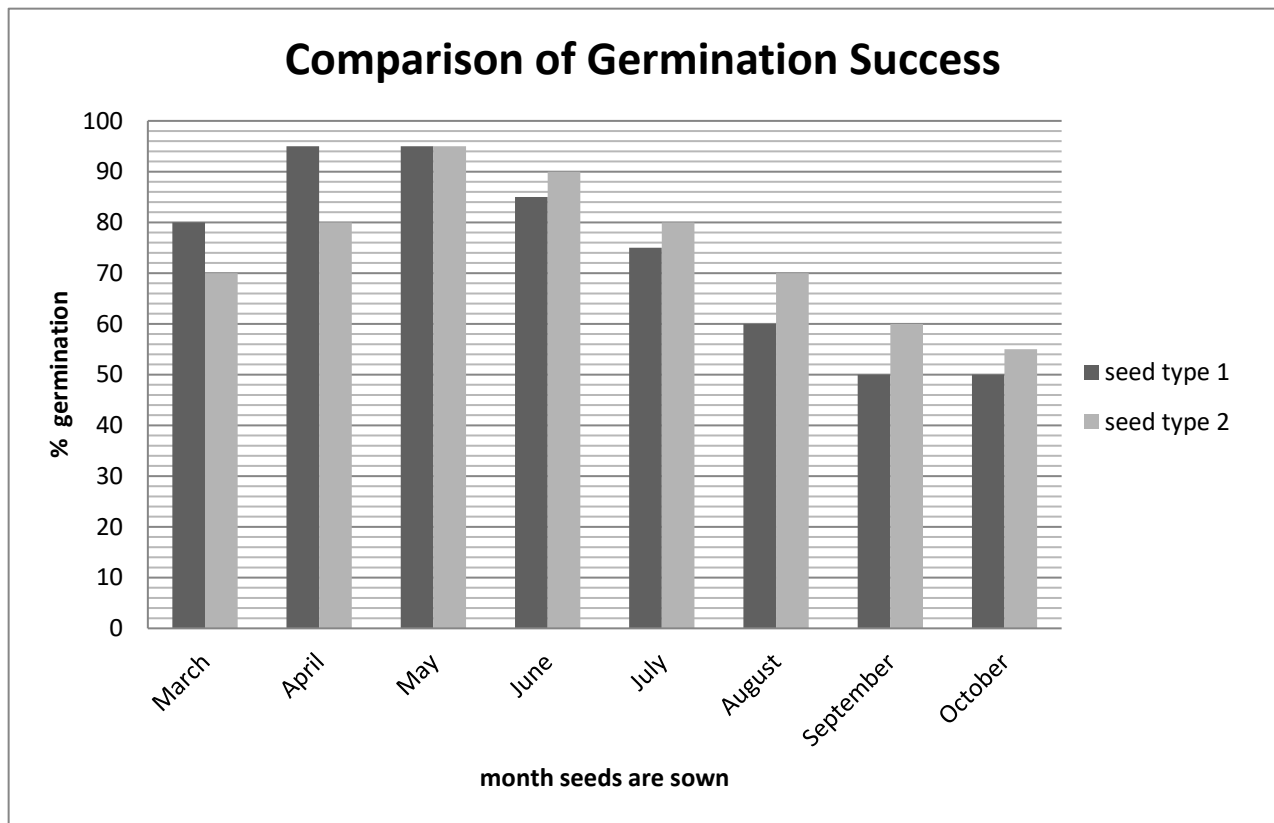
        The part where the grass will be grown is 25 m by 15 m.

        The amount of grass seed required is 60g per m^2.

        How much grass seed in total is required for this area?

        A   2.4 kg
        B   6.3 kg
        C   21.3 kg
        D   22.5 kg

4. The germination success of seeds depends upon the month they are sown. Two different seed types are compared in the chart.

Comparison of Germination Success

According to the chart, which of the following statements is true?

A   The germination rate for seed type 2 is 10 percentage points greater in September than March.

B   In April the germination rate for seed type 1 is 15 percentage points greater than for seed type 2

C   There are 4 months when the germination rate for seed type 2 is greater than 80%

D   There are no months when the germination rate for seed type 1 is less than 55%

5. The seed producer states that the best temperature to sow the seeds is 57° Fahrenheit.

Use this formula.

$$\frac{9}{5}C + 32 = F$$

C= temperature in ° Celsius

F= temperature in ° Fahrenheit

What is the equivalent of 57° Fahrenheit in degrees Celsius, to the nearest degree?

A   14° C
B   23° C
C   45° C
D   49° C

6. Ten stepping stones are to be made out of concrete.

The volume of the stones needs to be calculated in order to work out how much concrete is needed.
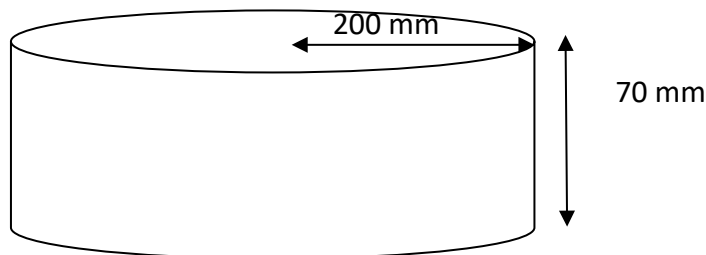

200 mm

70 mm

Diagram not drawn to scale

The volume of the stepping stones can be calculated using the following formula:

$$V=3r^2h$$

h= height

r= radius

What is the total volume of concrete required for 10 stepping stones? (rounded to 2 significant figures)

A   0.084 m³
B   0.84 m³
C   8.4 m³
D   84 m³

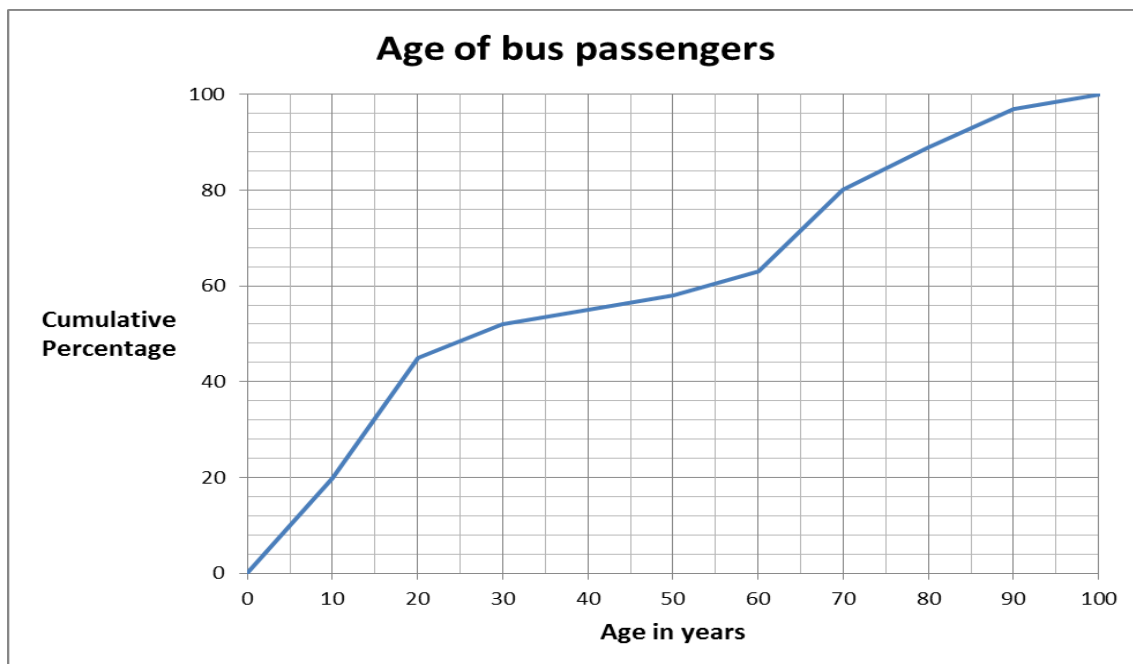**Questions 7 to 13 are about a coach company.**

7. The company runs a coach from Llandrindod Wells to Newtown.

   The table shows how late the coach was over a period of a month.

Number of minutes late	0	1-5	6-10	11-15	16-20	21-25	26-30
frequency	17	40	24	10	5	3	1

   What is the mean number of minutes that the coach was late (to 2 significant figures)?

   A   4.6 minutes
   B   6.3 minutes
   C   7.6 minutes
   D   8.0 minutes

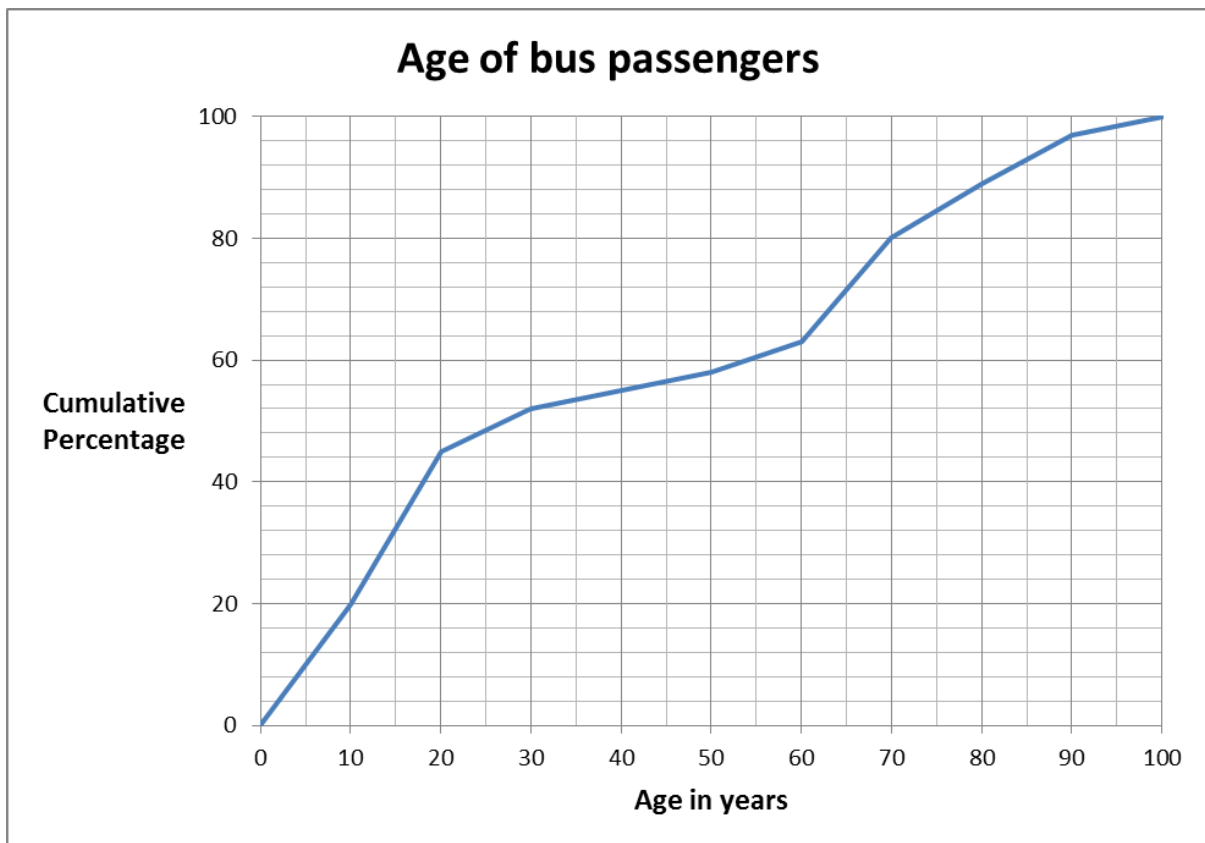8. A survey was carried out on the ages of passengers using a particular bus route.

   Passengers aged 65 and over have a free bus pass.

   What percentage of the bus passengers have a free bus pass?

   A   28%
   B   40%
   C   64%
   D   72%

4

9.

Age of bus passengers

Which is closest to the median age of the bus passengers?

A   20 years
B   28 years
C   39 years
D   58 years

10. This table shows information about bus tickets.

Owen Lloyd Coaches Llanbair-Newtown-Llanbair Standard Single Ticket £2.50 Standard Return Ticket £4.50						
Age	Free travel	Half fare	Young person's travel card	Season ticket*		
				weekly	monthly	annual
0-5	✓					
6-15		✓				
16-25			✓£25 annual fee Allows half price travel	✓£13.50	✓£48	✓£450
26-64				✓£20.25	✓£72.00	✓£720
65 and over	✓ (off-peak only)			✓ (for peak time travel) £20.25	✓ (for peak time travel) £72.00	✓ (for peak time travel)
* Season Tickets allows unlimited travel between Llanbair and Newtown, 7 days a week						

A 20 year old woman buys a travel card.

She buys one standard return ticket each Saturday for 20 weeks.

What is the total amount that she spends on the travel card and the tickets?

A   £38.50
B   £45
C   £70
D   £115

11. A 30 year old man buys a standard return ticket between Llanbair and Newtown 4 days a week for 50 weeks.

Owen Lloyd Coaches **Llanbair-Newtown-Llanbair** Standard Single Ticket £2.50 Standard Return Ticket £4.50						
Age	Free travel	Half fare	Young person's travel card	Season ticket*		
				weekly	monthly	annual
0-5	✓					
6-15		✓				
16-25			✓£25 annual fee Allows half price travel	✓£13.50	✓£48	✓£450
26-64				□£20.25	□£72.00	□£720
65 and over	✓ (off-peak only)			✓ (for peak time travel) £20.25	✓ (for peak time travel) £72.00	✓ (for peak time travel)
* Season Tickets allows unlimited travel between Llanbair and Newtown, 7 days a week						

What would be the percentage saving if he bought an annual season ticket?

A   50%
B   20%
C   5%
D   2%

12. A hybrid bus runs on diesel and electricity.

A hybrid bus has lower carbon dioxide (CO_2) emissions than a standard bus.

Hybrid bus CO_2 emission= 864 g/km

Standard bus CO_2 emission=1295 g/km

A bus travels 1200 km in a week.

How much lower are the total CO_2 emissions from a hybrid bus than a standard bus in one week?
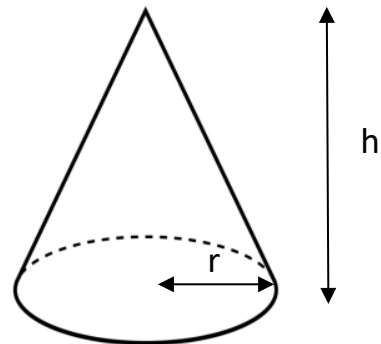
A   431 g
B   1.80 kg
C   51.72 kg
D   517.2 kg

13. A reflective cover is added to the curved surface of traffic cones at the coach depot.

Total surface area of cone= $\prod r(h+r)$
Area of a circle=$\prod r^2$

Which is the correct formula to calculate the curved surface area of the cone?

A   Curved surface area $= \prod rh + r - \prod r^2$
B   Curved surface area $= 2rh$
C   Curved surface area $= \dfrac{h+r}{r}$
D   Curved surface area $= \prod rh$

Questions 14 to 19 are about camping holidays.

14.   This formula gives the capacity of a frame tent.

$$C = \frac{hl(a + b)}{2}$$

Where   C is the capacity in cubic metres

h is the height in metres

l is the length in metres

a is the top width in metres

b is the base width in metres

Rearrange the formula to give the base width of a frame tent.
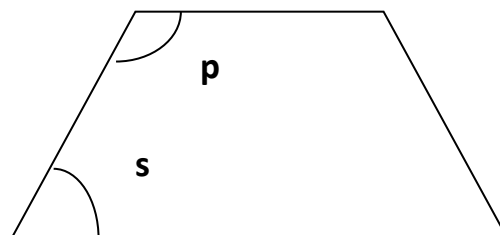
A $b = \dfrac{hl}{2C} - a$

B $b = \dfrac{2C}{hl} - a$

C $b = \dfrac{2C - a}{hl}$

D $b = \dfrac{hl - a}{2C}$

15.   The holiday company produce a scale diagram of their 4 person tent for their brochure.

The front face of the tent is an isosceles trapezium.

Angle **p** on the diagram is 115º.

What is the size of angle **s**?

A   25º
B   35º
C   65º
D   85º

16. The length of the 4 person tent is 480cm.

On a scale drawing this length is represented by a line of length 9.6cm.

The base width of the tent is 270cm.

How long should the base width be on the scale diagram?

A   1.8cm
B   4.8cm
C   5.4cm
D   17cm

17. A family from Germany use this table to find the cost of a stay in a campsite.

Camp site costs	
Tent	**Cost for your whole stay**
2 person tent	£25
3 person tent	£30
4 person tent	£36
for 5+ person tent	£42
People	**Cost per person per night**
Adult	£20
Child age 15 and under	£10
Car £8 per night	

The family want to spend 7 nights at the campsite.

In the family there are two adults, and two children aged 7 and 9

They have a 4 person tent and 1 car.

1 Euro = £ 0.80

What is the total cost of their stay in Euros?

A   122 Euros
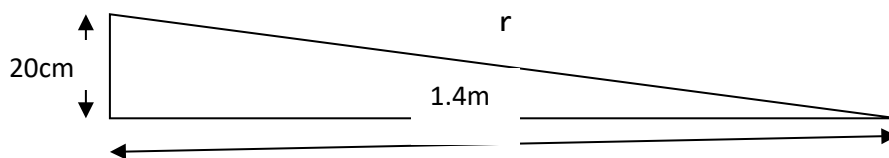B   190 Euros
C   410 Euros
D   640 Euros

18. During the high season, 30 caravans have to be cleaned between 10 am and 3 pm on Saturday.

Cleaning takes 40 minutes per caravan.

How many cleaners are required to clean the caravans on a Saturday in the high season?

A   3
B   4
C   7
D   10

19. The campsite owner builds a wheelchair ramp to the shower block entrance.

What is the length of the slope of the ramp (r on the diagram)?

A $\sqrt{1.6}$ m
B $\sqrt{1.92}$ m
C $\sqrt{2}$ m
D $\sqrt{2.36}$ m

Questions 20 to 24 are about tourism in Wales.

20. The table shows information about visits to Wales.

Overnight visits to Wales by British residents	
Year	Number of visits
2013	1.23×10^8
2014	1.14×10^8

What is the difference between the numbers of overnight visits to Wales by British residents in 2013 and 2014?

A   90 000
B   900 000
C   9 000 000
D   90 000 000

21. From January to March 2015, 16.5million day visits were made by British residents to Wales.

This was an increase of 10% from the same period in 2014
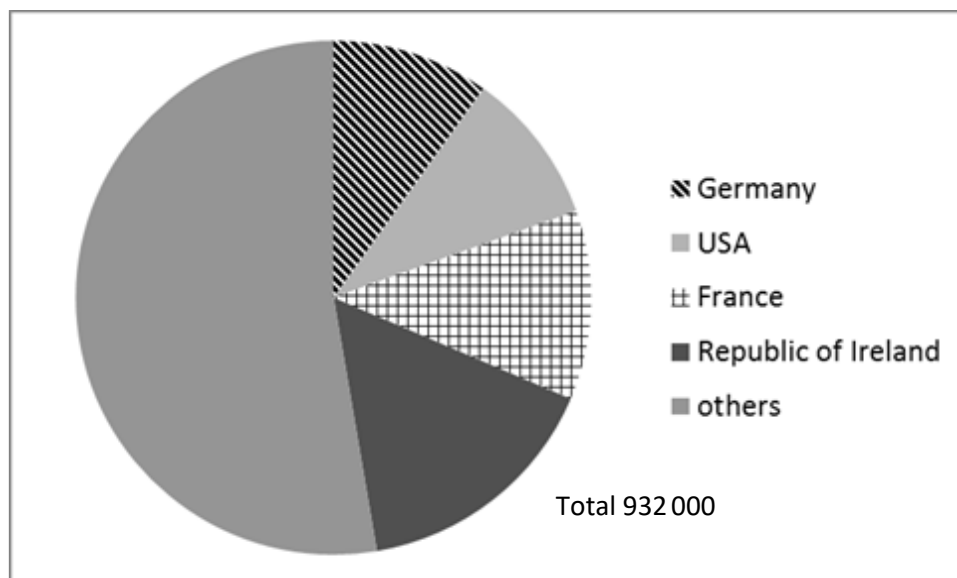
The average spending on each day visit in 2014 was £50

What was the total spending by British residents on day visits to Wales from January to March 2014?

A   £83.5 million
B   £742.5 million
C   £750 million
D   £825 million

22. The chart is about international visitors to Wales.

Country of Residence of International Visitors to Wales 2014

The angle of the sector representing the Republic of Ireland is 54°

How many visitors to Wales in 2014 were from the Republic of Ireland?

A   503 280
B   139 800
C   27 300
D   17 259

23. The number of visitors to Wales in 2015 from Brazil was estimated at 96.

It is predicted that the development of a motorsport circuit in Wales would increase this value by a power of 2

What is 96^2?

A   98
B   192
C   1440
D   9216

24. In the year 2000 the number of visitors to Wales from the Baltic countries was 2.3×10^3
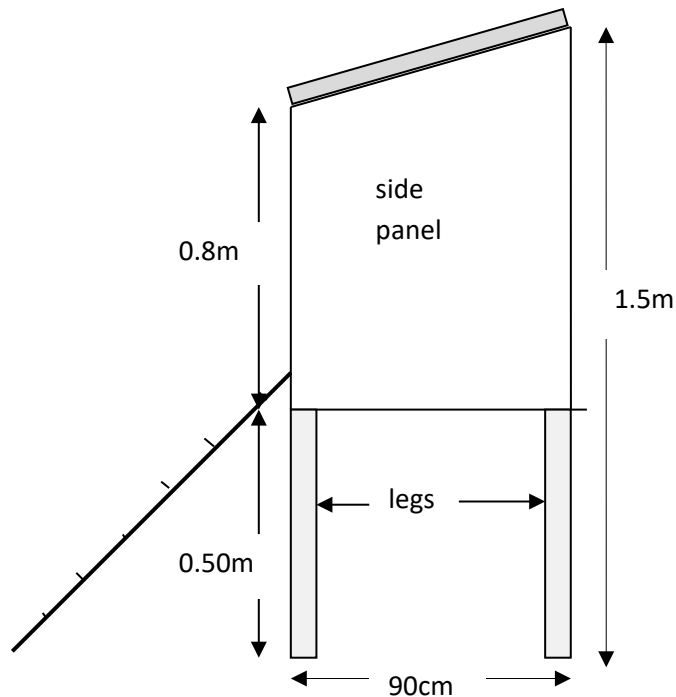
In 2015 the number of visitors from this region was 1.1×10^2 times larger.

How many visitors to Wales from the Baltic countries were there in 2015?

A 2.53×10^2
B 2.53×10^5
C 3.4×10^5
D 2.53×10^6

Questions 25 to 27 are about keeping chickens.

25.   The diagram shows a plan of a side view of a hen house.

The side panel of the hen house is made of plywood.

What is the area of one side panel?

A   0.72 m^2
B   0.81 m^2
C   0.9 m^2
D   1.7 m^2

26.   The maximum number of chickens that can be kept in a hen house is
       9 per square metre of floor space.

The floor space of a hen house is 2.5 m long and 2.2 m wide.

What is the maximum number of chickens that can be kept in the hen house?

A   46
B   47
C   49
D   50

27. A type of chicken feed is available from two different suppliers.

Bowley's feed: £9 for a 50 lb bag

Arthur's feed: £10 for a 20 kg bag

1lb=0.45 kg

What is the difference in cost per kg between the two bags of feed?

A   Bowley's feed is 42p per kg more expensive
B   Bowley's feed is 10p per kg more expensive
C   Bowley's feed is 42p per kg cheaper
D   Bowley's feed is 10p per kg cheaper

Questions 28 to 30 are about African elephant conservation.

28. The population of African elephants has decreased from 4.2 million in 1935 to 580 000 in 2015.

   What is the average decrease per year in the population of African elephants between 1935 and 2015?

   A   45 250
   B   46 000
   C   51 775
   D   57 750

29. The area in which the elephant is found is called its range.

   The range in Africa is 5.7 million square kilometres.

   Only 20% of the range is currently protected.

   Use this information.

   1 km^2 is equivalent to 0.4 square miles

   How large is the protected area in square miles?

   A   0.456 million square miles
   B   1.14 million square miles
   C   2.28 million square miles
   D   2.85 million square miles

30. A new anti-poaching vehicle costs 57 000 US dollars.

   The salary of one ranger for one month costs 250 US dollars.

   A UK charity raises £1 500 a month for the fight against elephant poaching.

   1 US dollar is equivalent to £0.70

   How many months will it take the UK charity to raise enough money for a new anti-poaching vehicle and the salary of a ranger for 12 months?

   A   280 months
   B   54 months
   C   40 months
   D   28 months