

Which of the following surfaces does not belong to the prism above?



Samantha makes a pyramid by using a white paperboard and she paints some parts blue. The expanded form of the pyramid is as shown in the figure above.

Which of the following options cannot be the closed form of the pyramid?
A)

B)

D)

C)


| Archie |
| :---: |
| $\left(x^{2}-1\right)(x-1)$ |


| Brooke |
| :---: |
| $(x+1)^{2}(x-1)$ |


| Cara |
| :---: |
| $\left(x^{2}+2 x+1\right)(x-1)$ |


| Darcey |
| :---: |
| $\left(x^{2}-1\right)(x+1)$ |

The table above displays the pocket money of four kids Archie, Brooke, Cara and Darcey in terms of the variable $x$.

Which one of the kids may have different pocket money than the others?
A) Archie
B) Brooke
C) Cara
D) Darcey


The sides of the intertwined squares in the figure above are $\mathbf{a c m}$ and $\mathrm{b} \mathbf{c m}$.
The sum of the perimeters of the squares is $36 \mathbf{c m}$ and $\mathbf{a - b}=3$
Given the circumstances what is the area of the blue region?
A) 9
B) 18
C) 27
D) 36

$A B C$ is a triangle and the line segments [DE] and [FG] are parallel to each other.
Given that the area of the triangle $A B C$ is $45 \mathrm{~cm}^{2}$ and $\frac{I A D I}{\mid B D I}=\frac{I C F I}{I B F I}=2$
What is the area of the blue region in square centimetres?
A) 20
B) 25
C) 30
D) 35

What is the result of the operation $\frac{22}{0.22} \cdot \frac{0.7}{7} \cdot \frac{0.46}{23}$ ?
A) 0.1
B) 0.2
C) 0.3
D) 0.4

Given that the scientific notation of the number 0.000000002 is $a \cdot 10^{n}$
What is the value of $\mathbf{a} \cdot \mathbf{b}$ ?
A) -18
B) -16
C) 16
D) 18

Given that the lines $2 x+b y=4$ and $a x-y=-3$ intersect at the point $A(3,2)$
What is the value of $a+b$ ?
A) -1
B) $-\frac{4}{3}$
C) $-\frac{5}{4}$
D) -2


The locations of the numbers $A, B, C$ and $D$ on the number line are as shown in the figure.

What could be the result of the expression $2 \cdot \sqrt{5} \cdot \sqrt{12}$ equal to?
A) A
B) $B$
C) C
D) D

The numbers 24 and $(13+\vee)$ are relatively prime.
How many different values can the number $\downarrow$ take if it is also a numeral?
A) 1
B) 2
C) 3
D) 4


A kg of lentil and B kg of rice will be packed in bags of same size. The weights of both grains are between 40 kg and 60 kg .

Given that the numbers $A$ and $B$ are distinct numbers and their greatest common divisor is 6 , at least how many bags are needed?
A) 12
B) 13
C) 14
D) 15


In the diagram above, $\mathbf{c}$ and d represent the operation that will be applied to the boxes on their left. One of the operations is addition and the other is multiplication bur it is not mentioned which is which. The results of the operations are written in the boxes on the right. All the numbers in the boxes are integers.

What are the values of $a, b$ and $e$ respectively?
A) $1,13,2$
B) $-1,1,13$
C) $1,2,13$
D) $1,-11,2$

## $K=\mathbf{2}^{4} \cdot \mathbf{3}^{\mathbf{2}} \cdot \mathbf{5}$ <br> $L=2^{3} \cdot 3^{3} \cdot 7^{2}$

Prime factorization of the numbers $K$ and $L$ are as follows.
What is the lowest common multiple of them?
a- $2^{3} \cdot 3^{2}$
b- $2^{4} \cdot 3^{3} \cdot 5 \cdot 7$
c- $2^{3} \cdot 3^{2} \cdot 5 \cdot 7^{2}$
d- $2^{4} \cdot 3^{3} \cdot 5 \cdot 7^{2}$

Assuming that the current time is as shown in the figure above, in how many minutes will the numbers showing the hour and the minute be relatively prime for the first time?
A) 2
B) 3
C) 4
D) 5

$|A D|=6 \sqrt{2} \mathrm{~cm},|D C|=4 \mathrm{~cm}$ and $\mathrm{m}(\widehat{\mathrm{DAB}})=45^{\circ}$
Given the circumstances what is the area of the trapezoid $A B C D$ ?
A) $36 \mathrm{~cm}^{2}$
B) $42 \mathrm{~cm}^{2}$
C) $48 \mathrm{~cm}^{2}$
D) $54 \mathrm{~cm}^{2}$

| Age interval | Number of people |
| :---: | :---: |
| $18-25$ | 60 |
| $26-35$ | 38 |
| $36-45$ | 32 |
| $46-60$ | 29 |

The table above displays the age intervals and number of people within the intervals in a company.

Given the circumstances, what is the probability that a worker chosen randomly is at least 26 years old?
A) $45 \%$
B) $55 \%$
C) $60 \%$
D) $75 \%$


A jug weighs 960 grams when one third of it is filled with water. When half of the water in the jug is consumed, the jug weighs $\mathbf{7 8 0}$ grams.

What is the full capacity of the jug?
A) 960 grams
B) 1080 grams
C) 1800 grams
D) 2400 grams


Mr Morrison who comes to Germany for a business trip hires a car from the company in the advertisement above. The price for the first day is $€ 180$ and the price for the following days is $€ 50$ each.

When he returns the car at the end of his visit, he notices that the average price per day is $€ 60$.

How many days did his visit last?
A) 10
B) 11
C) 12
D) 13


Chef Grace makes a dough of 900 grams, using milk, sugar and flour with the ratios 6:1:2 respectively.

How much flour is there in the dough?
A) 100 grams
B) 200 grams
C) 300 grams
D) 400 grams


Given that $\mathbf{1 2 0}$ grams of walnut is $(x+4)$ Euros and 100 grams of walnut is $(5 x+2)$ Euros, how much does a kilo of walnut cost?
A) $€ 24$
B) $€ 30$
C) $€ 36$
D) $€ 42$


A perfume contains 40\% water, 30\% essence A, 20\% essence B and 10\% essence C. 1 litre of essence $A$ costs $€ 80,1$ litre of essence $B$ costs $€ 60,1$ litre of essence $C$ costs $€ 90$.

Given that water is free of charge, how much does producing 1 L of perfume cost?
A) $€ 45$
B) $€ 50$
C) $€ 55$
D) $€ 60$

## Given that

$M=\frac{8}{3}-\frac{1}{4}-\frac{3}{7}$

What is the equivalent of the following expression in terms of $\mathbf{M}$ ?
$\left(-\frac{5}{3}+\frac{5}{4}+\frac{10}{7}\right)$
A) $3-\mathrm{M}$
B) $2+\mathrm{M}$
C) $6+M$
D) $6-M$


Lengths of four sides of a concave pentagon are as given in the figure above. One external and two internal angles of the pentagon are $90^{\circ}$.

Given the circumstances what is the length of the line segment $[B C]$ ?
A) 5 units
B) 6 units
C) 7 units
D) 8 units


The pie charts above display distribution of types of cars produced in a car factory in the years 2019 and 2020.

The number of cars produced in 2020 is three times the number of cars produced in 2019. The number of sedan cars produced in 2020 is 50 more than the number of sedan cars produced in 2019

How many cars were produced in 2020?
A) 240
B) 270
C) 300
D) 360


Aidan has drawn an ABC triangle and he spots the points $K, L, M$ and $N$ on the [ $B C$ ] side of it. The distances between the points are $2,3,4,5$ and 6 cm from left to right as shown in the figure above.

Aidan then decides to draw the median of the side [BC].
Where should he locate the end point of the median?
A) Between K and L
B) Between $L$ and $M$
C) Between M and N
D) Between N and C

