The American Academy Nicosia

Sample 3 Entrance Examination

Serial number 202212

Mathematics

Year 7

Time Allowed: 1 hour

Read the below instructions carefully before starting the exam:

- Read all instructions carefully.
- If you cannot answer a particular question, move on to the next one without losing time.
- Use of calculator is not allowed.

Question 1:

Calculate:

a) $\frac{6}{8} - \frac{3}{8}$

Answer: ……$\frac{3}{8}$……[1]

b) $\frac{5}{9} \div \frac{27}{35} = \frac{5}{9} \times \frac{27}{35} = \frac{1}{1} \times \frac{3}{7} = \frac{3}{7}$

Answer: ……$\frac{3}{7}$……[1]

c) $\frac{6}{15} \div \frac{18}{5} = \frac{6}{15} \times \frac{5}{18} = \frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

Answer: ……$\frac{1}{9}$……[1]

Question 2:

Calculate: $386 - 198$

$$\begin{array}{r} 2\ 17\ 16 \\ 3\ \cancel{18}\ 6 \\ -\ 1\ 9\ 8 \\ \hline 1\ 8\ 8 \end{array}$$

$= 188$

Answer: ……188……[2]

Question 3:

Calculate $386 + 198$

$$\begin{array}{r} 1\ 1 \\ 3\ 8\ 6 \\ +\ 1\ 9\ 8 \\ \hline 5\ 8\ 4 \end{array}$$

$= 584$

Answer: ……584……[2]

Question 4:

Calculate 687×6

$$\begin{array}{r} 4\ 5\ 4 \\ 6\ 8\ 7 \\ \times\ \ \ \ 6 \\ \hline 4\ 1\ 2\ 2 \end{array}$$

$= 4122$

Answer: ……4122……[2]

Question 5:

Calculate $4184 \div 8$

$$\begin{array}{r} 523 \\ 8\overline{)4184} \\ \underline{40} \\ 18 \\ \underline{16} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

Answer: ……523……[2]

Question 6:

Find $\frac{7}{9}$ of 810

$$\frac{7}{9} \times 810 = 7 \times 90 = 630$$

[2]

Question 7: Find the next two numbers in these sequences

a) 3, 6, 9, 12, ..., ..., 15, 18

b) 28, 23, 18, 13, ..., ..., 8, 3

[4]

Question 8:

If £80 are equivalent to €100, how many euros are equivalent to £120?

£80 → €100 ÷2 £40 → €50 ×3

£120 → ? £120 → €150

Or

$$\frac{80}{100} = \frac{120}{x}$$

$$x = \frac{120 \times 100}{80} = 150$$

[3]

Question 9:

At a supermarket, the cost of can of fresh juice is 90 cents each. I have **€**25 euros to spend. How many cans of fresh juice can I buy? Show your working.

$$\begin{array}{r} 27.7 \\ 90\overline{)\,2500.0 \cdot\ 0} \\ \underline{180} \\ 700 \\ \underline{630} \\ 700 \\ \underline{630} \\ 700 \end{array}$$

€25 = 2500 *cents*

2500 ÷ 90 = 27.7 …

I can buy **27 cans**

[3]

Question 10: Work out the following

$5 + 3 \times 4 = 5 + 12$

$= 17$

[2]

Question 11:
Choose from the following set of numbers the following

$$10, 11, 12, 13, 14, 15, 16, 17$$

(a) a square number

Answer: ……16……[1]

(b) three multiples of 2.

Answer: ……10,12,14…… [3]

(c) three factors of 60

Answer: ……10,12,15……[3]

Question 12:
Change 0.86 to a fraction leaving your answer in its simplest form.

$$= \frac{86}{100} = \frac{43}{50}$$

Answer: …… [1]

Question 13:
I went to the bookshop and I bought 4 pens, each costing €1.35 and 6 box files, each costing €2.25.

a) How much did I pay?

$4 \times 1.35 = €5.40$
$6 \times 2.25 = €13.50$

$€13.50 + €5.40 = €18.90$

Answer: …€18.90……[3]

b) I paid with a €20 note. How much change did I receive?

$€20 - €18.90$

Answer: ……€1.10…… [2]

Question 14:

The temperature on New Year's Eve was 5 degrees less than the temperature on Christmas Eve. If the temperature on Christmas Eve was $3C^o$, what was the temperature on New Year's Eve.

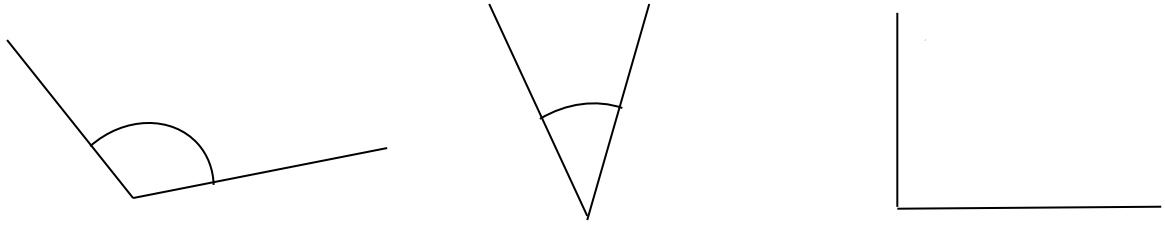
$$3 - 5 = -2^oC$$

[2]

Question 15:

State whether the following angles are obtuse, acute or right-angle.

(a) (b) (c)



Obtuse Acute Right-Angle

[3]

Question 16:

Convert the following into decimal form

a) 67%

Answer: ……0.67……[1]

b) $\frac{13}{25} = \frac{13\times4}{100} = 0.52$

Answer: ……0.52……[1]

c) $\frac{46}{10000}$

Answer: ……0.0046……[1]

Question 17:

A car leaves Manchester at 21:15 and reaches London at 00:45 the next morning.

(a) Work out how long the journey takes in hours and minutes.

From 21:45 until 00:15 → 3 hours
From 00:15 until 00:45 → 30 minutes

Answer: ……3……. hours ……30…….. minutes [2]

An airplane leaves London at 21:15 and takes a total of 6 hours and 35 minutes to fly to New York. London is 5 hours ahead of New York (i.e. when the time is 13:00 in London, it is 08:00 in New York).

(b) Work out what the local time is in New York when the flight lands. Give your answer in 24 hour form.

6 hours after 21:15 → 03:15
35 minutes after 03:15 → 03:50 (London Time)

03:50 reduced by 5 hours → 22:50 New York Time

Answer: ……22:50…… [3]

Question 18:

I think of a number, multiply by 2 and add 11. The answer is 23. What was the number i thought of?

$$\left(\left(\quad\right) \times 2\right) + 11 = 23$$

$$\left(\quad\right) \times 2 = 12$$

$$\left(\quad\right) = 6$$

Answer: ……..[2]

Question 19:

(a) Find the area of the following shape

$$4 \times 9 = 36cm^2$$

Answer: ……36…… cm^2 [2]

(b) A triangle with base 18cm has an area of 90 cm^2. Find its height.

$$\frac{(\quad) \times 18}{2} = 90$$

$$(\quad) \times 18 = 180$$

$$(\quad) = 10$$

Answer: …… [3]

Question 20:

Find the value of x from the following equation.

$$19 - x = 12$$

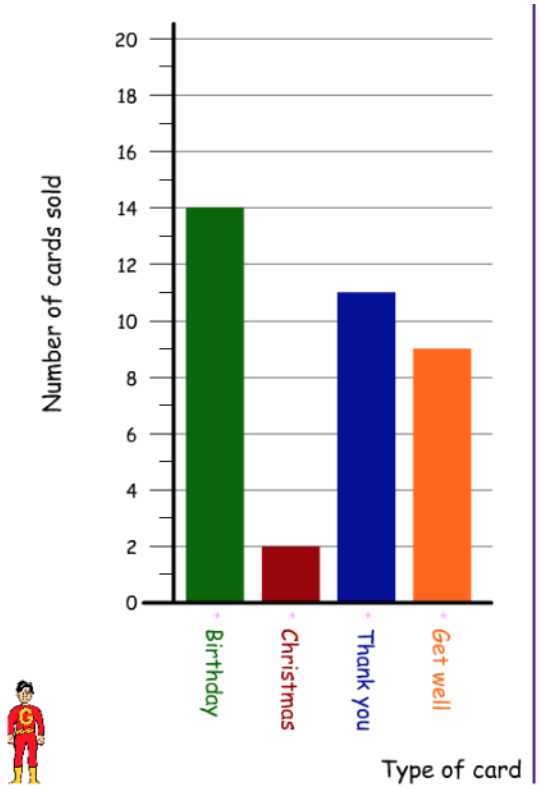
$$12 + x = 19$$

$$x = 19 - 12$$
$$x = 7$$

Answer: …… [2]

Question 21:

A bookshop decided to make a survey on the number of cards sold during last year based on the type of the car. The results are summarised below.



(a) How many get well cards were sold?

Answer: .....9.....[1]

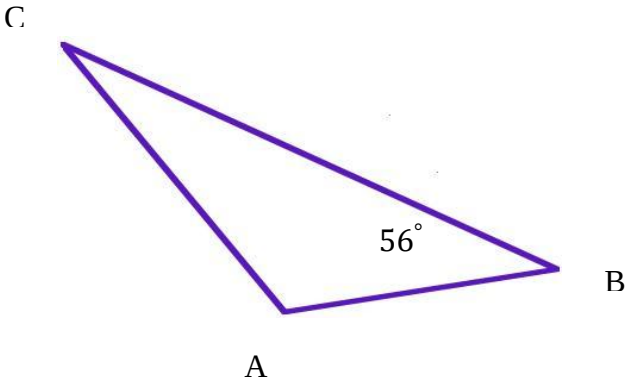
(b) How many more Birthday cards were sold than Christmas cards?

Answer: .....12.....[2]

(c) How many cards were sold altogether?

Answer: .....34.....[2]

Question 22:
ABC is a triangle. Angle B is 56° and angle C is the half of angle B. Find the size of angle A.



$$C = \frac{56}{2} = 28$$

$$28 + 56 = 84^{o}$$

$$180 - 84 = 96^{o}$$

Answer: ……96^{o}……..[4]

Question 23:

Round the following numbers accordingly

(a) 5497 (to the nearest hundred) ……5500……..

(b) 48398 (to the nearest thousand) ……48000……..

(c) 6.52 (to the nearest whole number) ……7……..

(d) 512 (to the nearest ten) ……510……..

[4]

Question 24:
A trouser costs €35. How much will it cost during sales, if the normal prices are reduced by 20%?

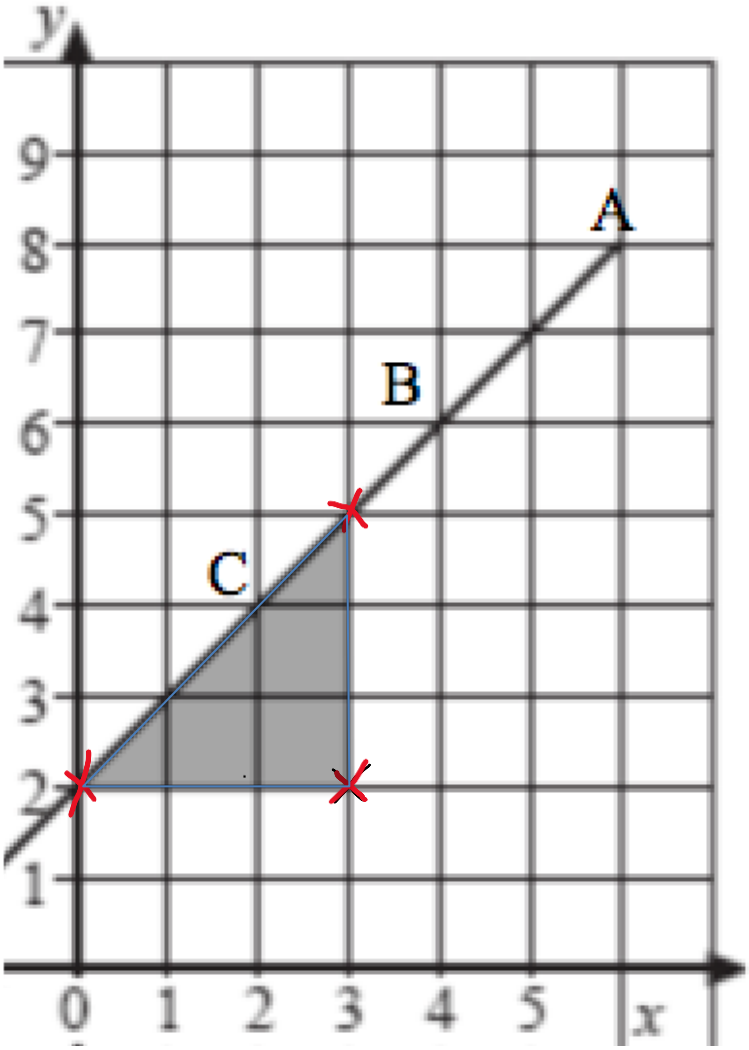
10% of €35 = €3.50
20% of €35 = €7.00

€35 - €7.00 = €28

Answer: ……..[2]

Question 25:

(a) From the following graph, give the co-ordinates of the points A, B and C.



A (6, 8) B (4, 6) C (2,4)

[2]

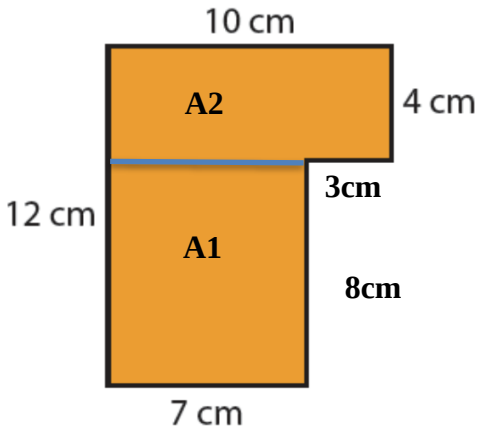
· *1 mark for 2 correct points*

b) On the same graph, shade the area which is enclosed by the following points:

D(0,2), E(3, 2), F (3, 5)

[2]

Question 26:
Find the area and the perimeter of the following shape.



$A1 = 10 \times 4 = 40cm^2$

$A2 = 8 \times 7 = 56cm^2$

Total Area: $40 + 56 = 96cm^2$

Perimeter: $12 + 10 + 4 + 3 + 8 + 7 = 44cm$

Area: ..... [3]

Perimeter: .....[3]

Question 27:
If $x = 3, \quad y = 8, \quad z = 4$, calculate the following

$$x + y \div z$$

$$3 + 8 \div 4$$
$$3 + 2 = 5$$

Answer: .....5.....[3]

Question 28:
Put the following numbers in order, starting from the smallest.

1.3×10 $\quad$ 4×4 $\quad$ $36 \div 4$ $\quad$ $15\%\ of\ 80$

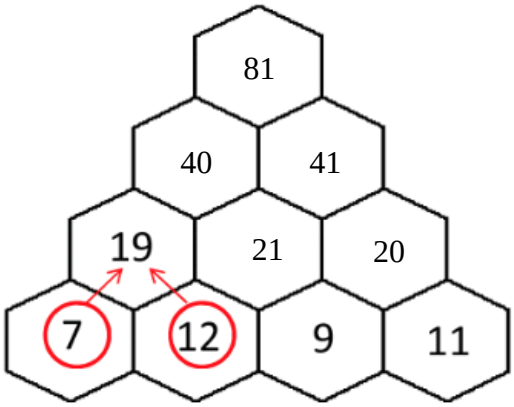
13 $\quad$ 16 $\quad$ 9 $\quad$ 10% = 8, 5% = 4
12

$36 \div 4,$ $\quad$ $15\%\ of\ 80,$ $\quad$ $1.3 \times 10,$ $\quad$ 4×4

[5]

Question 29:

Fill in the blanks of the following number pyramid following the shown rule



1 mark for every 2 correct values- follow through

[3]

Question 30:

A 4-sided spinner is marked with the numbers 2, 4, 6 and 9 so that each number is equally likely to be obtained. The spinner is spun once. Calculate the following probabilities, giving your answer in its simplest form.

(a) 2 is obtained

$\frac{1}{4}$

(b) An even number is obtained

$\frac{3}{4}$

(c) An odd number is obtained

$\frac{1}{4}$

(d) A number greater than 5 is obtained

$\frac{2}{4} = \frac{1}{2}$

[4]

END OF PAPER