

SCI ●

GAP



There are two or three gaps in each of the following short texts, indicating that something has been omitted in the sentence. Choose the option containing the expressions that **best** fit the overall meaning and the style of the text when filled in the gaps (**in the order provided**).

1.

It is _____ that hiking and other outdoor activities with the exception of skiing are not exactly popular in winter, so most campsites and hostels are _____ in this period.

- (A) proven – booked
- (B) **understandable – closed**
- (C) probable – full
- (D) unbelievable – empty

2.

Universities may get additional funds for newly opened educational _____ if they provide evidence of achievements in research and international cooperation and if they have a _____ number of staff with the ranks of professor and docent.

- (A) adjustments – required
- (B) **programmes – sufficient**
- (C) expenses – weak
- (D) affairs – quality

3.

Given that public healthcare is chronically underfunded, it is absolutely inappropriate to use the government funds to help finance _____ treatments that are not _____ proven, which means their effect is _____.

- (A) **alternative – scientifically – unclear**
- (B) special – experimentally – substantial
- (C) expensive – much – considerable
- (D) controversial – sufficiently – permanent

From options **A–D**, choose the best pair of words to fill in the gaps (**in the order provided**), so that the relationship between the words to the right of the equal sign (=) is **most** like the relationship between the words to the left of the equal sign (**the order of the words in the pairs matters**).

4.

MERCILESS : _____ = _____ : CAUTIOUSNESS

- (A) cruelty – brave
- (B) courage – rude
- (C) **kindness – careless**
- (D) mockery – reckless

5.

_____ : BAKER = _____ : TAILOR

- (A) flour – suit
- (B) bread – thread
- (C) **cake – jacket**
- (D) oven – fabrics

6.

UNDERSTAND : _____ = _____ : HEAVY

- (A) confused – destroy
- (B) explained – lift
- (C) intelligent – transport
- (D) **complicated – carry**

In each of the following items, use options **A–D** to choose the word that is the closest to the meaning of the underlined word in the context of the sentence. From options **E–H**, choose the word that is the closest to the **opposite** meaning of the underlined word in the context of the sentence.

7.

The gorgeous crystal chandelier had tiny candle-like bulbs – you had to look closely to see them properly.

closest to the same meaning:

- (A) round
- (B) **little**
- (C) fragile
- (D) cute

closest to the opposite meaning:

- (E) huge
- (F) weak
- (G) lame
- (H) blinding

8.

Where alternative ways of achieving the pursued objective without limiting the right of ownership exist, priority must be given to these alternative ways.

closest to the same meaning:

- (A) original
- (B) observed
- (C) **intended**
- (D) achievable

closest to the opposite meaning:

- (E) difficult
- (F) unwanted
- (G) invisible
- (H) unnoticed

9.

The desire of most of the refugees to get to a particular country they see as a promised land cannot be administratively overridden; therefore, a number of politicians consider the proposal to set national quotas for the housing of refugees to be absolutely pointless.

closest to the same meaning:

- (A) **useless**
- (B) difficult
- (C) exaggerated
- (D) confused

closest to the opposite meaning:

- (E) popular
- (F) easy
- (G) logistical
- (H) reasonable

Each of the following texts contains one part whose meaning **does not correspond to** with the overall meaning of the text. For each item, choose the option with the part of the text which is **not consistent with its overall meaning**.

10.

The hysteria triggered in Czechia by the proposal to raise the tolerated blood alcohol limit for drivers to 50mg/100ml continues. There are very few factual arguments to support the current zero tolerance, though. Convincing empirical evidence of the fact that 50mg is not as bad is right before our eyes – it is provided by several countries in Western Europe. For instance, in Germany, which has tolerated 50mg for many years already, twice as many people per capita as in Czechia die in alcohol-induced car accidents. The fact that low blood alcohol concentration is not really dangerous is also confirmed by Czech accident statistics. Drivers with blood alcohol level up to 50mg only caused a very small proportion of the overall number of accidents in Czechia last year.

Which of the following parts of the text is **not consistent** with its overall meaning?

- (A) There are very few factual arguments to support the current zero tolerance, though.
- (B) Convincing empirical evidence of the fact that 50mg is not as bad is right before our eyes – it is provided by several countries in Western Europe.
- (C) **For instance, in Germany, which has tolerated 50mg for many years already, twice as many people per capita as in Czechia die in alcohol-induced car accidents.**
- (D) The fact that low blood alcohol concentration is not really dangerous is also confirmed by Czech accident statistics.

11.

Three local companies are testing a four-day work week. None of them has mentioned operational difficulties yet. Employees who are able to handle the five-day workload in four days while maintaining the quality of the customer service are happy with the scheme. People are happier and more efficient at work than they used to be. Employers abroad have similar results and experience. They mostly say that, due to performance requirements, a shorter work week leads to higher error rate of employees and operational complications. In any case, the introduction of a shorter work week has made employees not only happier, but according to records also healthier.

Which of the following parts of the text is **not consistent** with its overall meaning?

- (A) None of them has mentioned operational difficulties yet.
- (B) Employees who are able to handle the five-day workload in four days while maintaining the quality of the customer service are happy with the scheme.
- (C) People are happier and more efficient at work than they used to be.
- (D) **They mostly say that, due to performance requirements, a shorter work week leads to higher error rate of employees and operational complications.**

12.

The boom of online shopping brought predictions that brick-and-mortar shops – shops which customers can visit in person – were a thing of the past; that they would face a loss of customers and then disappear. However, such expectations have proven wrong. Brick-and-mortar shops still are the first choice of over 70% of customers. A recent survey has pointed out a low interest in shopping in ordinary shops; most people only use them to look at products that they later buy online. Online shopping still has some disadvantages for a number of customers (low credibility of an online shop, expensive shipping, need to pay in advance etc.). These are some of the reasons why online shopping is still not the preferred option of the majority of shoppers.

Which of the following parts of the text is **not consistent** with its overall meaning?

- (A) However, such expectations have proven wrong.
- (B) **A recent survey has pointed out a low interest in shopping in ordinary shops; most people only use them to look at products that they later buy online.**
- (C) Online shopping still has disadvantages for a number of customers (low credibility of an online shop, expensive shipping, need to pay in advance etc.).
- (D) These are some of the reasons why online shopping is still not the preferred option of the majority of shoppers.

13.

A group of US scientists conducted an experiment to examine the honesty of people in 40 countries. Researchers dropped off “lost” wallets at random locations to see how many of them would return to them. The result was fairly positive for humanity; what’s more, the Czech Republic ranked among the most honest countries. Interestingly, in all countries people were less willing to return a wallet with money in it. The Czech Republic came third with almost 80% wallets with cash and a bit over 50% of those without cash returned. China failed completely: less than 10% of wallets without cash and a bit over 20% of those with cash were returned. The researchers admit that they expected a different result: that people would be more likely to keep wallets with cash. In reality, their honour is far more important for them than profit.

Which of the following parts of the text is **not consistent** with its overall meaning?

- (A) The result was fairly positive for humanity; what’s more, the Czech Republic ranked among the most honest countries.
- (B) **Interestingly, in all countries people were less willing to return a wallet with money in it.**
- (C) The Czech Republic came third with almost 80% wallets with cash and a bit over 50% of those without cash returned.
- (D) China failed completely: less than 10% of wallets without cash and a bit over 20% of those with cash were returned.

14.

It was not alcohol as such that worried the proponents of prohibition, but places where it was consumed. What they had a problem with were the health aspects of alcohol consumption rather than the overall social context of men drinking. They considered a saloon a source of unrest and nuisance. In a saloon, working men would drink away money meant for their wives and children. Alcohol bars were places of gambling, betting, prostitution, and other criminal activities. The campaign for abstinence of course had deeper roots, though. In a broader context, saloons were the centres of urban immigrant working class culture which defied the traditional structures of social control.

Which of the following parts of the text is **not consistent** with its overall meaning?

- (A) **What they had a problem with were the health aspects of alcohol consumption rather than the overall social context of men drinking.**
- (B) They considered a saloon a source of unrest and nuisance.
- (C) In a saloon, working men would drink away money meant for their wives and children.
- (D) In a broader context, saloons were the centres of urban immigrant working class culture, which defied the traditional structures of social control.

Answer all the following questions using **only** the information given in or implied by the text.

15.

The Templars were one of the most powerful medieval military orders – only the Order of Saint John and the Teutonic Order could match their size and power. The Templars' original mission was to ensure the safety of crowds of European pilgrims traveling from the port of Jaffa to Jerusalem. Over time, the order gained so much power that it started fighting in battles; like this, their mission extended to the protection of the newly founded Kingdom of Jerusalem against its enemy Muslim neighbours.

Which of the following statements can be inferred from the text with certainty?

- (A) **The Teutonic Order was one of the most powerful medieval military orders.**
- (B) The Kingdom of Jerusalem was founded by the Templars.
- (C) Once the Kingdom of Jerusalem was established, the Templars stopped ensuring the safety of pilgrims heading to Jerusalem.
- (D) Jaffa was the original seat of the Templars; later, the order's seat was moved to Jerusalem.

16.

The Transgas building complex is located near Wenceslas Square in Prague, next to the Czech Radio building. The Club for Old Prague had tried to prevent its demolition; it wanted the Ministry of Culture to declare the buildings as part of the national heritage. However, that did not happen. Some of the reasons provided by the Ministry were that the Brutalist buildings designed by the team of the architect Vaclav Aulicky were inadequately integrated into the surrounding environment and that the complex was not, unlike the Ingstav building or the Kotva department store, a significant example of Brutalism.

Which of the following statements can be inferred from the text with certainty?

- (A) Vaclav Aulicky is mainly known for his Brutalist buildings inadequately integrated into the surrounding environment.
- (B) Transgas, Ingstav and the Kotva department store are linked by their architect.
- (C) **The Ministry of Culture had the power to declare the building complex as part of the national heritage.**
- (D) Brutalist buildings were designed and built mainly in Prague.

17.

Hydrogen, just like electric energy, must be produced artificially because there are no hydrogen sources anywhere on Earth. Chemical engineers are able to design production plants to manufacture hydrogen from almost any other fuels: gas, oil, or coal, or it can be produced from water using electric energy.

Which of the following statements can be inferred from the text with certainty?

- (A) Coal is the most widely used source to generate hydrogen.
- (B) Sources needed to produce hydrogen can only be acquired by means of electric energy.
- (C) Hydrogen production plants usually do not need electric energy supply.
- (D) **A possible use of electric energy is to generate hydrogen from water.**

18.

Development in genetics undoubtedly changes our understanding of what it means to be human. In this sense, there is no genetic research that would not include ethical aspects.

Which of the following statements can be inferred from the text with certainty?

- (A) Any research, especially research in genetics, includes ethical aspects.
- (B) **Genetic research always includes ethical aspects of some kind.**
- (C) Genetic research shows that the conception of the human being remains stable.
- (D) Ethics is the foundation and key aspect of all research of the human genome.

19.

In 1981, Columbia became the first space shuttle that went into space. Later on, Challenger was constructed, and then Discovery and Atlantis. They served together in missions: on average five missions per year would take place. When Challenger was destroyed in 1986, a new space shuttle was built: Endeavour. Since the disaster of Columbia in landing in 2003, only the three remaining space shuttles have stayed in use.

Which of the following statements can be inferred from the text with certainty?

- (A) Since the disaster of Columbia, the Endeavour shuttle has not been used.
- (B) Exactly one of the space shuttles used after 2003 was built before 1986.
- (C) **The first space shuttle to go into space was still used more than 15 years after the last flight of Challenger**
- (D) Before its destruction in 1986, Challenger participated in 5 missions every year.

20.

Political parties are defined as permanent organisations which have local structures and seek to gain and exercise power. Unlike pressure movements, they do not only want to influence public affairs and the direction the society is taking. Despite several common features, they also differ from military or terrorist movements by seeking public support to achieve their goals.

Which of the following statements can be inferred from the text with certainty?

- (A) **Political parties share some features with military or terrorist movements.**
- (B) Political parties do not seek to influence public affairs and the direction society is taking.
- (C) Political parties exclusively use peaceful means to reach their goals.
- (D) It is difficult to find the boundary between a political party and a terrorist movement.

Read the text and then choose the **best** answer to each question. Answer all questions using **only** the information given in or implied by the text.

QUESTIONS 21–26

The Way Children Draw Human Figures Has Changed Since The 1970s, Study Shows

Over the last half century, Western European countries have enjoyed a large increase in gender equality. There is a long way to go, but some statistics are striking: for instance, in Germany the employment rate of women has increased from 48 per cent in 1980 to 73 per cent today. Psychologists were interested in whether, and how, these kind of societal-level changes filter down and affect children’s conceptions of gender.

To find out, a team at the University of Münster and Osnabrück University, led by Bettina Lamm, has compared the way that young German children in 1977 drew a human figure with the way that age-matched German children in 2015 drew a figure. The results, published in *Sex Roles*, suggest two parallel changes: girls in 2015 more often chose to draw a female figure than girls in 1977; at the same time, the children tested in 2015 depicted female figures as more distinctly feminine than the children in the 1970s.

There were 208 boys and girls in the sample from 1977 and 168 in the contemporary sample, with no significant age differences between the two. Both groups were recruited from comparable West German cities and all children spoke German at home.

The children in 1977 had the same task as the children in 2015. They were given a blank piece of paper and a pencil and the instruction to “draw a picture of a person as well as you can” with no time limit. The researchers then coded all the drawings for whether they were of male or female gender, and how many gender stereotypical details they included, in terms of things like hairstyle, clothing and jewellery.

In 1977, the overwhelming majority of the children’s drawings were of men (70 per cent vs. 18 per cent female, with the gender of the remainder not identifiable), with just 34 per cent of the girls choosing to draw a human figure of their own gender. In 2015, this had changed dramatically – now overall more of the drawn figures were female (47 per cent) than male (40 per cent), with the remainder not clearly identifiable as one gender or the other, and 85 per cent of the girls chose to draw their own gender.

In terms of gender differentiation, the female figures drawn in 2015 were more overtly feminised in stereotypical fashion via their clothing and accessories than they were in 1977. Conversely, there was a trend for the male figures to appear less overtly masculinised – perhaps, the researchers speculated, because of the school context in which boys may have been reluctant to draw stereotypically masculine accessories such as guns, out of fear of disapproval due to male attributes becoming “less valued or socially accepted”.

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21.

According to the text, what is true about the employment rate of women in Germany?

- (A) It is the same today as it was in 1980.
- (B) It contradicts the results of the study conducted in 2015.
- (C) **It is higher nowadays compared to 1980.**
- (D) It was the main reason behind the 1977 study.

22.

By what did the researchers code all drawings?

- (A) by the language the children spoke at home
- (B) by their artistic quality
- (C) by their resemblance to real people
- (D) **by the number of typical male or female attributes they included**

23.

According to the scientists, what might be a possible reason boys in 2015 drew less masculinised figures compared to 1977?

- (A) their lack of drawing skills
- (B) their fondness for stereotypically masculine accessories
- (C) **their fear of negative feedback from society**
- (D) their unwillingness to fully engage in the study

24.

Which two of the following statements about the 2015 study are true?

- I. Girls mostly drew figures of their own gender.
- II. The gender of more than half of the drawings could not be recognized.
- III. Overall, there were more drawings of female than male figures.
- IV. The sample was larger than in the 1977 study.

- (A) I and III
- (B) I and IV
- (C) II and IV
- (D) III and IV

25.

Which two of the following statements about changes between 2015 and 1977 are true?

- I. In 2015, stereotypes related to female clothes were more present than in 1977.
- II. In 1977, there were no gender-stereotypical drawings.
- III. In 2015, the gender of most figures could not be identified.
- IV. In 1977, a lower proportion of girls chose to draw female figures than in 2015.

- (A) I and II
- (B) I and IV
- (C) II and IV
- (D) III and IV

26.

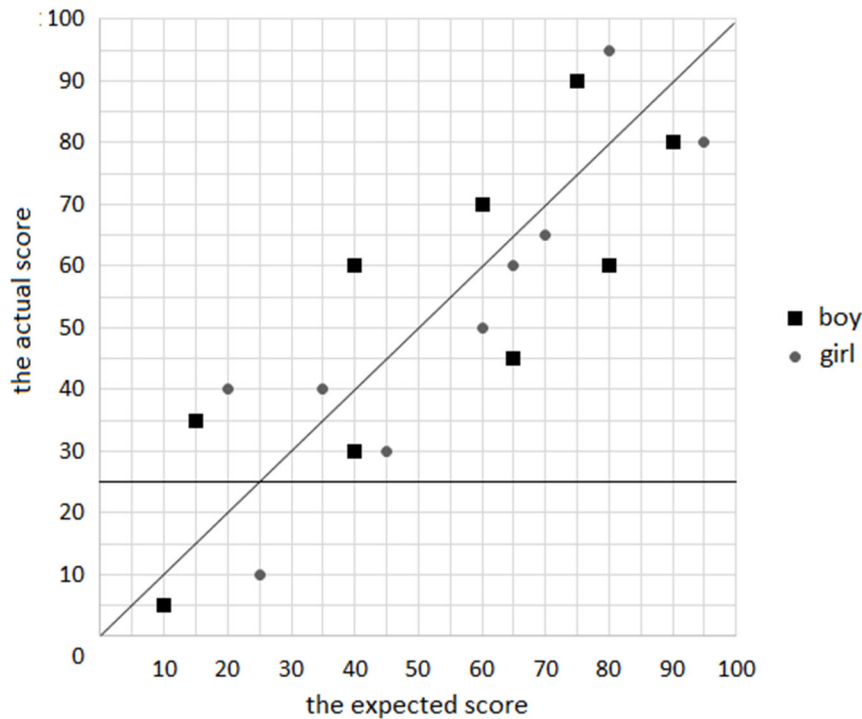
Which of the following conclusions can most likely be drawn from the text?

- (A) German children are getting worse at drawing human figures.
- (B) **Societal development influences the way children think about gender.**
- (C) There are more children who can differentiate between men and women at a young age than in the past.
- (D) Children are immune to gender stereotypes.

The use of a calculator is not permitted! Unless indicated otherwise, all numbers used are real numbers based on the decimal system. All lines that appear straight should be considered to be straight lines. The number placed next to a part of a geometric shape indicates the size of that part. **No assumptions should be made about the size of any unmarked parts of the shapes.** Solve the geometry problems using mathematical knowledge, not estimation or measurement from the figure. If any question contains a variable, all its possible values must be considered for the solution.

QUESTIONS 27–29

The following graph shows the actual and expected number of points scored in a test by 9 girls and 9 boys. It was possible to get 0 to 100 points in the test; gaining at least 25 points was needed to pass the test.



27.

How many boys and how many girls expected to fail in the test, but eventually passed?

- (A) no boy and no girl
- (B) no boy and one girl
- (C) one boy and no girl
- (D) one boy and one girl

28.

How many points were scored by the girl whose expected test result differed from her actual test result by the highest number of points?

- (A) 20 points
- (B) 40 points
- (C) 80 points
- (D) 95 points

29.

What is the total number of boys who had expected they would score at least 15 points more than they actually scored?

- (A) 2
- (B) 4
- (C) 5
- (D) 6

QUESTIONS 30–32

The table shows distances (in kilometres) between six towns along direct roads.

	Bakersfield	Hartford	Kingsport	Longbeach	Portland	Union
Bakersfield	X	40	55	20	22	46
Hartford	40	X	60	22	60	46
Kingsport	55	60	X	63	50	20
Longbeach	20	22	63	X	42	51
Portland	22	60	50	42	X	52
Union	46	46	20	51	52	X

30.

By how many kilometres is the direct route along the road from Kingsport to Hartford shorter than the route from Kingsport to Hartford via Longbeach?

- (A) by 3 km
- (B) by 19 km
- (C) by 22 km
- (D) by 25 km

31.

James needs to go from Union to Bakersfield and to stop in exactly one of the four remaining towns on his way. What is the shortest possible road distance he has to travel?

- (A) 52 km
- (B) 64 km
- (C) 68 km
- (D) 71 km

32.

Which town has the lowest sum of road distances to all other five towns?

- (A) Bakersfield
- (B) Hartford
- (C) Kingsport
- (D) Longbeach

In the following items, compare the values of the expressions on the left and on the right and choose answer

- (A) if the value on the left is greater,
 (B) if the value on the right is greater,
 (C) if the values are equal,
 (D) if it cannot be determined which value is greater (i.e. it cannot be unequivocally decided if the value on the left is greater than the value on the right, smaller than the value on the right or the same as the value on the right).

Information regarding one or both expressions is given above the expressions.

left	right	left	right
33.		36.	
<p>30 cyclists took part in a race. All of them started at the same moment. The winner, whose average speed was 40 km/h, reached the finish line in 6 hours.</p>		<p>In a triangle ABC, the interior angle at vertex A is 90° and the interior angle at vertex B is 40°.</p>	
220 km	distance covered in 6 hours by the participant who reached the finish line last	length of the side AB	length of the side AC
<p>(A) The value on the left is greater than the value on the right. (B) The value on the right is greater than the value on the left. (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>		<p>(A) The value on the left is greater than the value on the right (B) The value on the right is greater than the value on the left (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>	
34.		37.	
<p>John is training long-distance running. He ran the first kilometre in 4 minutes. In the second kilometre he slowed down and it took him 25% longer than the first kilometre. Then he speeded up again, so the third kilometre took him 20% less time than the second kilometre.</p>		<p>the area of a right-angled triangle whose longest side is 8 cm long</p>	
John's average speed during the first kilometre in km/h	John's average speed during the third kilometre in km/h	the area of a right-angled triangle whose longest side is 6 cm long	
<p>(A) The value on the left is greater than the value on the right. (B) The value on the right is greater than the value on the left. (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>		<p>(A) The value on the left is greater than the value on the right. (B) The value on the right is greater than the value on the left (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>	
35.		38.	
<p>Charles has CZK 360 and wants to buy several identical glasses and several identical mugs. He can buy exactly 4 glasses and 2 mugs, or exactly 2 glasses and 3 mugs (in either case, he will then have no money left).</p>		<p>Consider a triangle ABC with internal angles α, β, γ and consider an angle δ. Suppose that</p> $\gamma > \alpha > \beta$ $\beta + \delta = 180^\circ$	
total price of 3 glasses	total price of 2 mugs	$2a$	δ
<p>(A) The value on the left is greater than the value on the right (B) The value on the right is greater than the value on the left. (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>		<p>(A) The value on the left is greater than the value on the right. (B) The value on the right is greater than the value on the left. (C) The value on the right is the same as the value on the left. (D) It cannot be determined which value is greater.</p>	

Each of the following items consists of a question and two statements, marked as (1) and (2), which contain certain information. Some items also include introductory information. Using all this information, knowledge of mathematics and well-known facts (i.e. the number of days in July, what is meant by “from left to right”, etc.), decide whether the information is **sufficient to determine an unambiguous answer** to the question asked.

39.

Is the positive integer n divisible by 24?

- (1) n is divisible by 2, 3 and 4.
 - (2) n is divisible by 48.
- (A) Statement (1) alone is sufficient, but statement (2) alone is not sufficient.
- (B) **Statement (2) alone is sufficient, but statement (1) alone is not sufficient.**
- (C) Both statements together are sufficient, but neither statement alone is sufficient.
- (D) Either statement alone is sufficient.

40.

Is the year in question a leap year? (A leap year is a year which has 366 days).

- (1) The last day of at least one month of the year in question is not the 29th day of the month.
 - (2) The 60th day of the year in question is the first day of one of the year's months.
- (A) Statement (1) alone is sufficient, but statement (2) alone is not sufficient.
- (B) **Statement (2) alone is sufficient, but statement (1) alone is not sufficient.**
- (C) Both statements together are sufficient, but neither statement alone is sufficient.
- (D) Either statement alone is sufficient.

41.

Jane is cycling at a constant velocity of 4 m/s. Lucy gave her a head start of 300 meters and then she started following her along the same path at a constant velocity of 6 m/s. How long is it going to take Lucy to catch up with Jane?

- (A) 50 seconds
- (B) 1 minute
- (C) 1 minute and 40 seconds
- (D) **2 minutes and 30 seconds**

42.

Joanna's watch gains two minutes per hour. Lucas's watch loses one minute per hour. What is the shortest period after setting the same time on both watches in which the watches will show a difference of one hour?

- (A) 10 hours
- (B) **20 hours**
- (C) 30 hours
- (D) 40 hours

43.

Consider a combination lock with a 3-digit code. Each digit can only feature numbers 0 to 9 and no number can be used more than once in the code. How many code combinations does the lock have?

- (A) 1,000
- (B) **720**
- (C) 504
- (D) 360

44.

In the square $ABCD$, K is the midpoint of the side AB , L is the midpoint of the side BC and M is the midpoint of the side CD . What is the ratio of the area of the triangle ADL to the area of the triangle KLB ?

- (A) **4 : 1**
- (B) 2 : 1
- (C) 3 : 2
- (D) None of the other answers is correct.

45.

There are 20 balls in total in the lottery drum. Each of them is either white, blue or red. We are going to draw one ball from the lottery drum without looking. The probability that we will draw a white ball is the same as the probability that we will draw a blue ball but twice as high as the probability that we will draw a red ball. How many blue balls are there in total in the lottery drum?

- (A) 5
- (B) 6
- (C) **8**
- (D) 10

Each of the following items is based on a **text** or an **equation**, an **inequality**, a **function notation** or another **mathematical expression**, or a **combination** thereof. The solution of the item consists in mathematising a certain situation or, conversely, transforming the mathematical directions into verbal form. Always **read the item carefully**.

46.

Every day, Riley studies r exam topics and Karen studies k exam topics. In x days, Riley will have studied 4 times more topics than Karen will have studied in half of this period. Which of the following relations describes the above-mentioned situation?

(A) $4rx = k \frac{x}{2}$

(B) $rx = 4 \frac{k}{2}$

(C) $r = 4k \frac{x}{2}$

(D) $rx = 2kx$

47.

Which of the presented parts of the expression should be put in place of the question mark to make the equality valid?

$$x^2 + x \cdot ? = 3 - 2x$$

(A) $(-2 - x) + 3$

(B) $(3 - x) - 2$

(C) $(-x) - 2 + 3$

(D) $(-2) + 3$

48.

A function f is defined as $f(x) = 2 \cdot g(x)$. A function g is defined as $g(x) = x^2 + 3x - 4$. What is the value of f at $x = 2$?

(A) 4

(B) 8

(C) 10

(D) 12

Each of the following items is based on a text and a set of conditions. Pay attention to which conditions apply to the whole set of items and which conditions are specified for one item only. For some items, it may be helpful to use a rough sketch.

QUESTIONS 49–51

Six children – boys named Alex, Ben, Connor, and David and girls named Eva and Lana – made a theatre play based on the fairy tale of Budulinek. The play has five characters (Budulinek, the Fox, the Deer, the Huntsman, the Jay). They played it twice. Each child acted at least in one performance. None of the children played more than one character in one performance. The children agreed that the characters of Budulinek, the Deer, and the Huntsman must be played by boys, the character of the Jay must be played by a girl and anyone can play the Fox. We know that:

- Alex and Ben acted in both performances, each of them always played the same character.
- Eva only acted in the second performance. She played the character that was played by Lana in the first performance.
- Lana acted in both performances.
- In the first performance, Connor played Budulinek.

49.

Who could have played the Huntsman in the second performance?

- (A) only Alex or Ben
 (B) only Alex, Ben, or Connor
 (C) only Alex, Ben, or David
 (D) any of the boys

50.

Which of the following statements contradicts the above-stated conditions?

- (A) Eva played the Fox in the second performance.
 (B) Alex played the Huntsman in the first performance.
 (C) David played in both performances, but a different character each time.
 (D) The Fox was played once by a boy and once by a girl.

51.

Who played the character of the Fox in the first performance?

- (A) Ben
 (B) Eva
 (C) David
 (D) Lana

QUESTIONS 52–54

Members of a hiking club (girls: Jane, Kate, and Linda, boys: Mark and Robert) found out that they had saved CZK 2,000 in their cash box. They were thinking about what to do with the money. There were five proposals: go on a trip, get a pet, save the money for later, divide the money among the members, or buy equipment for the club room. The members decided they would vote to choose one single proposal: every club member could cast two votes, either each one for a different proposal, or both for one proposal. We know that:

- Kate voted for the proposal to save the money for later and for the proposal to buy equipment.
- The proposal to divide money among members got only one vote – from Robert.
- Linda voted for the proposal to go on a trip with both of her votes.
- Both boys voted for the proposal to get a pet.
- The proposal to go on a trip got 3 votes more in total than the proposal to save the money for later.

52.

What could be the total number of votes in favour of the proposal to buy equipment for the club room?

- (A) only 1
 (B) only 2
 (C) 1 or 2
 (D) 1 or 3

53.

Which of the following statements contradicts the above-stated conditions?

- (A) Exactly one boy voted for the proposal to go on a trip.
 (B) Only Kate voted for the proposal to save the money for later.
 (C) Jane used both of her votes to vote for the same proposal.
 (D) The proposal to go on a trip got 5 votes in total.

54.

If Jane voted for the proposal to get a pet, how many votes would this proposal get in total?

- (A) 2
 (B) 3
 (C) 4
 (D) 5

