



Thinking Skills Assessment Oxford

4502/11

Thursday 2 November 2017

1 hour 30 minutes

SECTION 1

Thinking Skills Assessment

INSTRUCTION TO CANDIDATES

Please read this page carefully, but do not open the question paper until you are told that you may do so.

This paper is Section 1 of 2. Your supervisor will collect this question paper and answer sheet before giving out Section 2.

A separate answer sheet is provided for this section. Please check you have one.

You also require a soft pencil and an eraser.

Please complete the answer sheet with your:

- TSA candidate number
- Centre number
- Date of birth
- Name

Speed as well as accuracy is important in this section. **Work quickly, or you may not finish the paper.** There are no penalties for incorrect responses, only points for correct answers, so you should attempt all 50 questions. All questions are worth one mark.

Answer on the sheet provided. Questions ask you to show your choice between five options. Choose the one option you consider correct and record your choice on the separate answer sheet. If you make a mistake, erase thoroughly and try again.

Any rough work should be done on this question paper. No extra paper is allowed. Dictionaries and calculators may NOT be used.



UNIVERSITY OF
OXFORD

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Please wait to be told you may begin before turning this page.

This paper consists of 31 printed pages and 5 blank pages.

PV4

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- 1 Leaders of enemy countries are often described by our own political leaders and by the media as “mad”. But some of the features that we associate with madness can be useful assets in a political leader. Self-absorption, obsession, addiction to risk-taking and frenzied creativity all apply to some leaders agreed to have been “great”, as well as to those described as “mad”. People without some of those characteristics would be unlikely either to seek power or to be successful. The label “mad” is cynically used as a way of dehumanising and discrediting leaders of countries with whom we are in dispute.

Which one of the following best expresses the main conclusion of the above passage?

- A People who seek power do so for their personal aggrandisement.
 - B There is agreement on which leaders are “great” or “mad”.
 - C A definition of a successful leader is one who can obtain and hold power.
 - D Political leaders have personality traits not normally found in the general population.
 - E The use of the word “mad” is a propaganda tool rather than a genuine description.
- 2 A café owner makes 50 mini pizzas and 50 flapjacks for sale during the day. The pizzas are sold for \$2.00 each and the flapjacks are sold for \$1.00 each. However, by the end of lunchtime there are 10 mini pizzas still unsold and 15 flapjacks unsold, so the price of each is halved for the afternoon. At the end of the day there are still 2 mini pizzas and 1 flapjack left which are given away free to the last customer.

If the original 50 mini pizzas and 50 flapjacks had a combined production cost of \$30.00, how much profit is made on the sale of the mini pizzas and flapjacks for the day?

- A \$100.00
- B \$102.50
- C \$115.00
- D \$120.00
- E \$130.00

- 3** The decline in voter turnout at elections is chiefly explained by the decline in voting by younger people. Older people are much more likely to vote. If this trend continues, we will reach a point at which no government can be said to have a mandate to govern as the number of voters will be too small to indicate the wishes of the majority. We need, therefore, to find an alternative to conventional elections so that the wishes of the people can be heard.

Which one of the following best expresses the flaw in the above argument?

- A** There may be problems in using alternatives such as internet and postal voting.
- B** Young people may be more likely to join a pressure group than to vote in an election.
- C** All European countries have seen a decline in voter turnout.
- D** Elections are used in all democratic countries as a way of choosing a government.
- E** People who are young now may become more likely to vote as they get older.

- 4** In today's 24/7 media environment, public figures have the ability to influence the behaviour of millions of young people, for better and for worse. There are celebrities who don't give in to social pressures and are in the news because of good deeds which have a positive influence on young people, such as giving to charity. However, there are others who glamorise destructive behaviour such as drinking, smoking, swearing and sexual promiscuity, giving young people the impression that this is socially acceptable or even desirable. Although many celebrities maintain that they do not wish to be regarded as role models, it seems that this attitude is not only unrealistic but also irresponsible, as their behaviour will undoubtedly be imitated.

Which one of the following can be drawn as a conclusion from the above passage?

- A** We are living in an age of celebrity culture.
- B** Celebrities should act responsibly because they are role models whether they like it or not.
- C** Less media coverage of celebrities would stop young people imitating their role models.
- D** Parents should monitor what their children are being exposed to in the media.
- E** Celebrities should not be regarded as role models.

- 5** Over the years, many owners of businesses have appointed their sons to run the business when they retired or died. But this has been unfair to other workers in the company, some of whom were probably more talented and experienced than the boss's son. It is highly unlikely that the son of the previous boss should happen to be the best candidate to take his place. The practice of favouring your own family when making senior appointments in industry and commerce should therefore be made illegal.

Which one of the following is an underlying assumption of the above argument?

- A** A talent for business often runs in families.
 - B** The best candidate should always be appointed to be head of a company.
 - C** Favouring your own family when making appointments is recognised as a corrupt practice.
 - D** There is no substitute for experience in acquiring the skills necessary to succeed in business.
 - E** Owners of businesses should be free to make their own decisions about who should take over from them.
- 6** A picture 40 cm high by 30 cm wide is to be framed. There will be a mount between the edge of the picture and the frame. This mount will be 6 cm wide at the top and sides, and 9 cm wide at the bottom. The width of the wood used for the frame is 2 cm.

What is the overall height of the framed picture?

- A** 46 cm
- B** 49 cm
- C** 56 cm
- D** 59 cm
- E** 62 cm

- 7 Below is a summary of all the second-hand cars sold by Bargain Cars during 2012 and 2013:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	85	83	98	102	118	135	88	97	116	83	125	128
2013	123	106	87	114	90	106	124	113	131	77	92	75

Which month of 2013 saw the biggest increase in sales compared with the previous month?

- A April
 - B June
 - C July
 - D September
 - E November
- 8 Rosie needs to mow her lawn. She has just bought a new lawn mower, and believes she can mow at a rate of 2 m^2 a minute. With her old mower, she could only mow the lawn at a rate of 1 m^2 a minute. Her lawn is 10 m by 25 m. There is a patio in one corner which is 2 m by 3 m and which she does not need to mow.

How much time does she save with her new lawn mower?

- A 122 minutes
- B 125 minutes
- C 128 minutes
- D 244 minutes
- E 250 minutes

- 9** In the UK, most people open a bank account in their teenage years. There is then a tendency not to change banks: eleven per cent of bank customers are still with the bank their parents set them up with when they were a child and haven't changed it since. This strongly suggests that, contrary to what most commentators say, people are not unhappy with the service that their banks provide.

Which one of the following, if true, most weakens the above argument?

- A** Nearly two-thirds of UK bank customers have changed banks and two per cent have switched over five times.
- B** Bank customers say that they feel that all banks provide the same level of service.
- C** Nearly two-thirds of customers say they are happy with their bank's service.
- D** Bank services change as people get older and their needs change.
- E** It is not difficult to change banks.

- 10** The UK Department of Education is encouraging pupils aged 14 to 18 to learn poetry by heart in order to recite it at a new national competition. This government initiative is designed to boost the confidence of young people and increase their awareness of poetry. By taking part in this initiative and by reciting poetry, young people will improve their appreciation of poetry.

Which one of the following identifies a flaw in the above argument?

- A** Young people are already aware of poetry.
- B** You don't have to recite poetry to appreciate it.
- C** Awareness is not the same as appreciation.
- D** The young people who are willing to recite poetry are already confident.
- E** Learning something in order to recite it is not the same as being creative yourself.

- 11** Health clubs are booming. It is claimed that this must be a positive sign about modern society, in that people now appreciate that a healthy body is needed in order to sustain a healthy mind. But that claim is mistaken because what those optimistic conclusions fail to appreciate is people's ability to deceive themselves. Surely if someone is really keen to stay fit they go jogging rather than join a health club? The health club phenomenon is just an example of how easily people can be swayed by marketing. They pay to jog on the spot when they could jog around the park for free. The vast majority of members barely use their health clubs and feel they are achieving something just by paying the fees.

Which one of the following best expresses the main conclusion of the above argument?

- A** Health clubs deceive people into joining them.
 - B** Most people who join health clubs are not getting healthy.
 - C** People do not really appreciate that they must keep their bodies healthy.
 - D** The success of health clubs is not a reliable sign of an improvement in people's health.
 - E** We should judge the nation's health by looking at the sales of jogging shoes not health club membership.
- 12** Tasty Crisps are currently running a promotion in which there is one money-off coupon inside every packet. Some coupons are worth 19p, some are worth 12p and others are worth 7p.

My friend tells me that he has at least one of each value and his seven coupons have a total value of exactly £1.

How many of my friend's coupons are worth 19p?

- A** 1
- B** 2
- C** 3
- D** 4
- E** 5

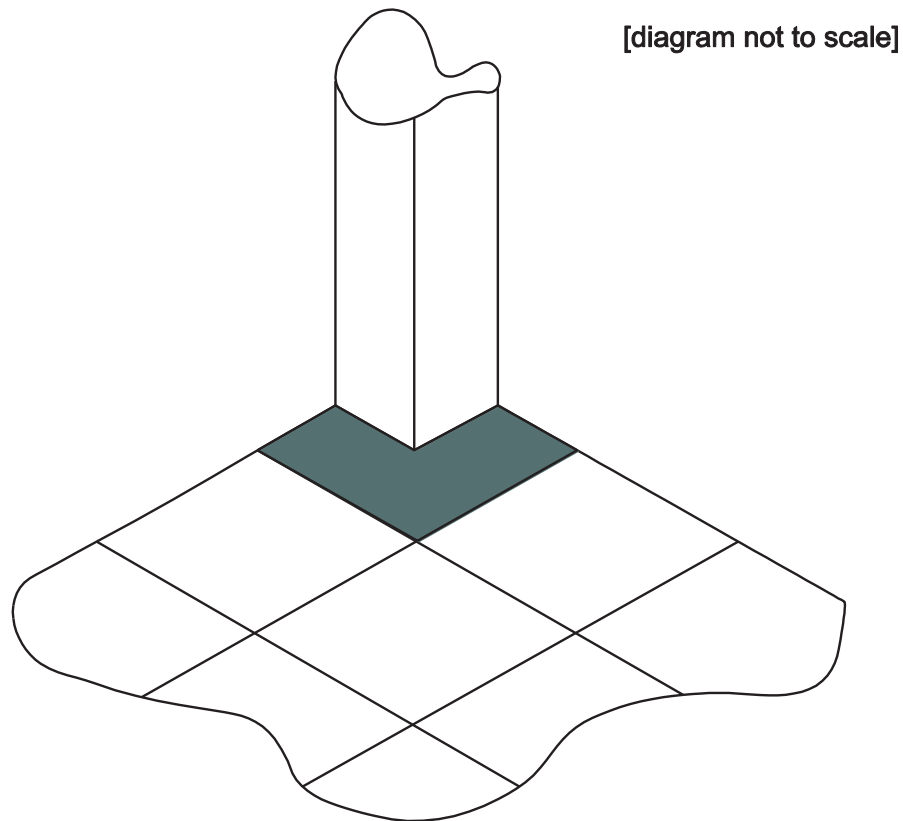
- 13** The following table summarises the results of all the matches played last season in a football league. (The home team's score is always given first.) Each team plays every other team in the league twice; once at home and once away.

		<i>away team</i>									
<i>home team</i>		Amazon	Danube	Ganges	Hudson	Nile	Orinoco	Rhine	Tigris	Volga	Yangtze
	Amazon		2–2	2–1	4–0	1–1	2–1	1–3	2–0	1–2	1–1
	Danube	1–3		1–4	2–1	2–3	0–1	2–1	0–0	2–5	0–1
	Ganges	2–2	3–1		2–0	1–2	2–3	1–3	1–2	3–1	2–0
	Hudson	1–2	0–1	2–1		0–1	1–3	2–1	1–0	1–4	0–0
	Nile	2–0	3–0	1–2	3–1		1–0	3–3	2–3	2–0	1–2
	Orinoco	4–1	0–0	3–1	2–0	3–2		2–2	3–1	1–2	2–0
	Rhine	2–3	2–1	1–1	3–0	1–2	2–0		3–0	2–2	3–1
	Tigris	1–1	2–2	1–3	1–0	2–0	0–2	0–3		2–4	1–0
	Volga	3–2	3–0	2–1	4–1	2–2	1–0	1–2	4–0		1–1
	Yangtze	0–2	1–2	2–0	2–1	3–1	0–3	0–2	2–0	1–3	

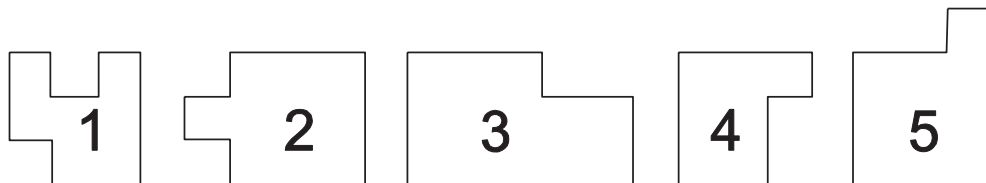
Which was the only team that scored at least one goal in every match they played last season?

- A** Amazon
- B** Ganges
- C** Nile
- D** Rhine
- E** Volga

- 14** A tiler has encountered a problem when tiling a kitchen floor. He is one tile short of completing the job. This is indicated by the greyed-out area in the diagram below which shows part of the kitchen floor:



There are some odd pieces of tile left over that could be used to complete the job. Three of these, if combined, would fit the area exactly.



Which three pieces of tile could be pieced together to fit into the remaining corner area? (The tiles are shown face up and cannot be laid face down.)

- A** 1, 2 and 5
- B** 1, 3 and 5
- C** 1, 4 and 5
- D** 2, 3 and 4
- E** 2, 4 and 5

- 15** Increasing attention is being paid to the environmental consequences of the plastic 'single-use' shopping bags provided to customers by supermarkets and other retailers. Not only does the production of these bags represent a wasteful use of natural resources, but there are also problems surrounding their disposal. For instance, the bags often end up as litter, and in the marine environment, they kill many animals that become entangled in them or mistake them for food. Numerous countries and individual cities have banned these bags, but experts on the environmental impacts of products warn that no perfect alternative exists. Whether using fabric or heavier plastic, manufacturing bags that are stronger and thus more reusable requires significantly greater quantities of natural resources than the vilified 'single-use' ones.

Which one of the following is a conclusion that can be drawn from the above passage?

- A** Encouraging consumers to change their behaviour is not an effective solution to environmental problems.
- B** Product bans are never an effective solution to environmental problems.
- C** The solution to environmental problems lies in limiting human population growth.
- D** Recycled paper bags should be used instead of plastic bags.
- E** When comparing two products from an environmental standpoint, it is important to consider their manufacturing processes, length of use, and disposal.

- 16** Several cities around the world have introduced congestion charging schemes. Drivers are expected to pay a fee in order to drive inside the charging zone. In recent years, some schemes have offered discounts or entirely waived the charge for vehicles that cause less pollution. This is, however, an illogical and unfair policy that should not continue. Congestion is unaffected by emissions, and those cars that have low emissions still contribute to congestion. Those who cannot afford to buy a low-emission car are still expected to pay the charge even if the roads they drive on remain congested.

Which one of the following is an underlying assumption of the above argument?

- A** The principal purpose of a congestion charge is to reduce congestion.
- B** It is not important to try to reduce car emissions in cities.
- C** All drivers would buy low-emission vehicles if they could afford to do so.
- D** Congestion charging has not had any positive effects where it has been used.
- E** If everyone drove low-emission cars, nobody would have to pay the charges.

- 17** We live in an information-rich world where communication is quicker and easier than ever before. We don't have to wait for journalists and photographers to report news to us. Anyone can talk about or take photographs of significant events and share them immediately. Traditional ways of reporting meant that news could be effectively censored, but this is no longer the case. Similarly, incorrect information cannot be removed from the public domain without great difficulty. Governments and the traditional media will therefore need to find new ways to cope with these challenges and adapt to new technology.

Which one of the following, if true, most strengthens the above argument?

- A** Some governments have successfully restricted the information available on the internet in their countries.
- B** Journalists occasionally film material on their mobile phones.
- C** Information can be posted anonymously on the internet, thus avoiding possible prosecution.
- D** Legal proceedings have been brought against those publishing false and incriminating material on the internet.
- E** In the past, individuals often took photographs that they then sold to the press.

- 18** I am planning to repaint the walls and the ceiling of my dining room. The room has the shape of a rectangular box and is 8 m long, 4 m wide and 3 m high. I do not need to paint the door and the three windows, the combined surface area of which is 10 m^2 . Paint is sold in 8-litre tins and 1 litre of paint is sufficient for a surface area of 12 m^2 .

How many tins of paint do I need to buy?

- A** 1
- B** 2
- C** 6
- D** 8
- E** 17

- 19** The heptathlon is a seven-event athletics competition. In each event the time or distance recorded is converted into a points score. This is the scoring table that is used for the high jump:

<i>performance</i>	<i>points</i>	<i>performance</i>	<i>points</i>	<i>performance</i>	<i>points</i>	<i>performance</i>	<i>points</i>
2.19	1498	1.89	1093	1.59	724	1.29	399
2.18	1484	1.88	1080	1.58	712	1.28	389
2.17	1470	1.87	1067	1.57	701	1.27	379
2.16	1456	1.86	1054	1.56	689	1.26	369
2.15	1442	1.85	1041	1.55	678	1.25	359
2.14	1428	1.84	1029	1.54	666	1.24	350
2.13	1414	1.83	1016	1.53	655	1.23	340
2.12	1400	1.82	1003	1.52	644	1.22	331
2.11	1386	1.81	991	1.51	632	1.21	321
2.10	1373	1.80	978	1.50	621	1.20	312
2.09	1359	1.79	966	1.49	610	1.19	302
2.08	1345	1.78	953	1.48	599	1.18	293
2.07	1332	1.77	941	1.47	588	1.17	284
2.06	1318	1.76	928	1.46	577	1.16	275
2.05	1305	1.75	916	1.45	566	1.15	266
2.04	1291	1.74	903	1.44	555	1.14	257
2.03	1278	1.73	891	1.43	544	1.13	248
2.02	1264	1.72	879	1.42	534	1.12	239
2.01	1251	1.71	867	1.41	523	1.11	231
2.00	1237	1.70	855	1.40	512	1.10	222
1.99	1224	1.69	842	1.39	502	1.09	214
1.98	1211	1.68	830	1.38	491	1.08	205
1.97	1198	1.67	818	1.37	481	1.07	197
1.96	1184	1.66	806	1.36	470	1.06	188
1.95	1171	1.65	795	1.35	460	1.05	180
1.94	1158	1.64	783	1.34	449	1.04	172
1.93	1145	1.63	771	1.33	439	1.03	164
1.92	1132	1.62	759	1.32	429	1.02	156
1.91	1119	1.61	747	1.31	419	1.01	149
1.90	1106	1.60	736	1.30	409	1.00	141

Daphne is competing in a heptathlon competition and has just beaten her previous best high jump performance by 18 cm. This has increased her best points score in the high jump by 214.

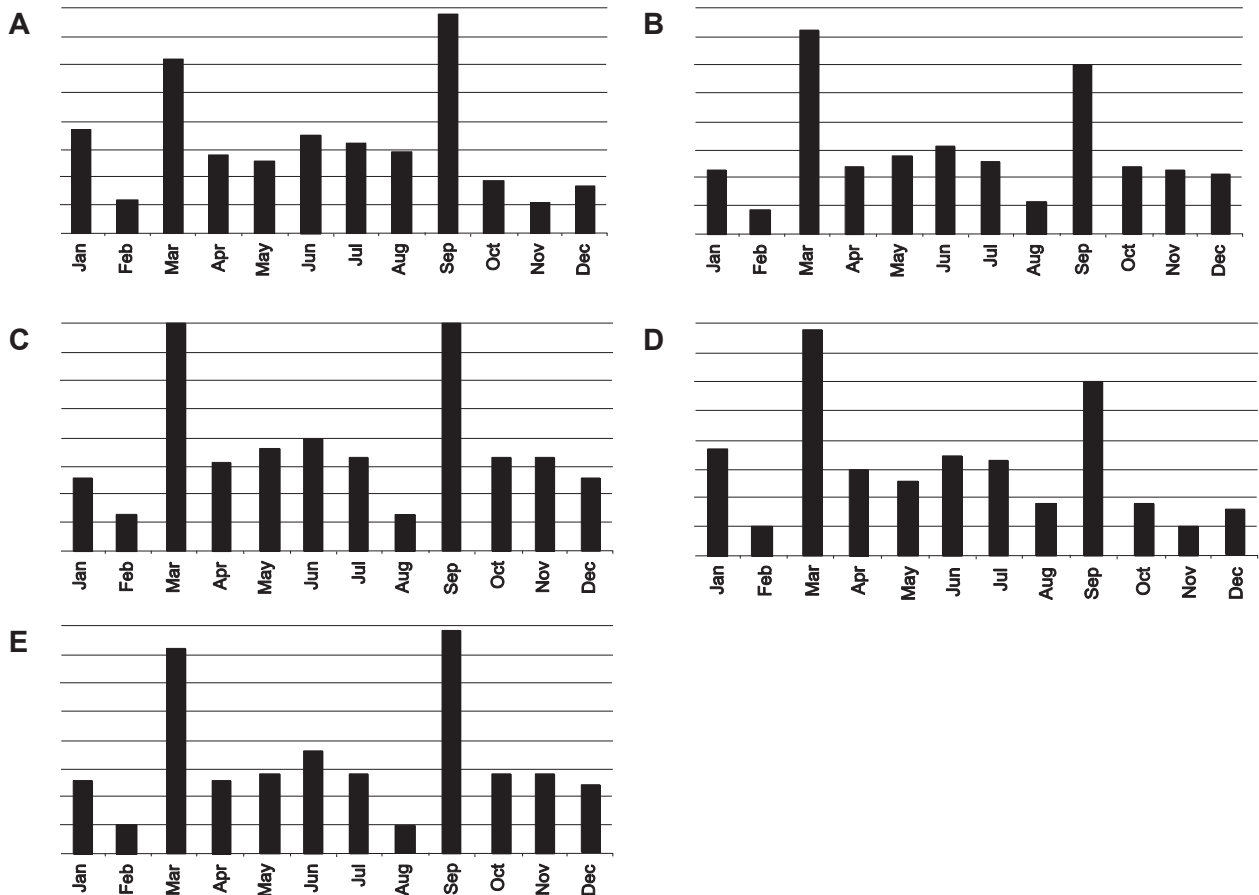
What is Daphne's new personal-best high jump performance?

- A** 1.09 metres
- B** 1.44 metres
- C** 1.74 metres
- D** 1.89 metres
- E** 2.09 metres

- 20** After the financial crash there were fewer new car registrations in the UK in 2012 than there were in 2007. The monthly figures for new car registrations for both years are given in the table below.

Jan 2012	124.1	Jan 2007	161.2
Feb 2012	61.4	Feb 2007	71.5
Mar 2012	367.9	Mar 2007	445.3
Apr 2012	138.0	Apr 2007	167.9
May 2012	159.0	May 2007	184.8
Jun 2012	185.5	Jun 2007	220.6
Jul 2012	141.7	Jul 2007	175.3
Aug 2012	57.5	Aug 2007	76.2
Sep 2012	359.0	Sep 2007	419.1
Oct 2012	149.7	Oct 2007	168.0
Nov 2012	150.3	Nov 2007	160.5
Dec 2012	123.1	Dec 2007	139.8

Which one of the following charts best represents the monthly differences between new car registrations for these two years?



- 21** Anyone who lends money to anyone else without a licence is committing an offence under UK law. Some unlicensed money lenders charge excessive rates of interest, and many use threats and violence to enforce payment. It is important to protect poor and vulnerable people from being exploited in this way. So anyone convicted of this offence should be sent to prison.

Which one of the following is the best statement of the flaw in the above argument?

- A** It appeals to the reader's emotions by describing some people as 'poor and vulnerable'.
- B** It draws a conclusion about all unlicensed money lenders on the basis of evidence about some of them.
- C** It makes a personal attack on the unlicensed money lenders.
- D** It restricts the options between licensed and unlicensed money lenders.
- E** It wrongly assumes that licensed money lenders do not charge excessive rates of interest.

- 22** Either young people are getting cleverer each year or examinations are becoming easier for students to pass. Since there is very little evidence from IQ testing and other supposed benchmarks that young people are more intelligent now than in the past, we must conclude that the examination system is easier for students today than it was in the past.

Which one of the following most closely parallels the reasoning used in the above argument?

- A** Farmers must choose between using organic or non-organic fertilisers on their land. Organic fertilisers can produce a lower crop yield and farmers may find it difficult to change to organic methods if they have been using non-organic methods for some time. Farmers should therefore consider the longer-term impacts of their decisions.
- B** Every year millions of holidaymakers decide whether to holiday in the UK or abroad. Since most of us like to have a degree of predictability in terms of holiday weather, we should not be surprised that, given the choice, most people would holiday abroad.
- C** Researchers have looked at the communication between different animals and found that meerkats have a series of alerts and calls that fall into two categories, greetings and alarms. Since we can be sure that this meerkat is not calling as a greeting, we must accept that he is attempting to raise the alarm.
- D** Wood burning stoves are a better way to heat your home than an open fire. Wood burning stoves are highly efficient, whereas an open fire loses a great deal of heat up the chimney. More people should therefore install wood burning stoves in their homes.
- E** When allocating emergency appointments, receptionists prioritise children and the elderly above other patients. If you are neither a child nor elderly, you may have to wait longer to see a doctor.

- 23** A huge number of people have taken up cycling in recent years, and this is a welcome development. But if cycling helmets were made compulsory, it would deter people from cycling. There is risk in everything. And there is also such a thing as personal responsibility. It is not the role of the government to stop people from harming themselves. Forcing cyclists to wear helmets is undue state interference in personal choices.

Which one of the following illustrates the principle used in the above argument?

- A** Alcoholics should not receive publicly funded treatment for their addiction because it is too expensive.
- B** Recreational drugs should be legalised.
- C** Professional cyclists should promote the wearing of helmets.
- D** The government should combat cyberbullying by passing appropriate legislation.
- E** It is right for parents to be fined if their children are absent from school without permission.

- 24** A laboratory technician has made up a stock mixture of two chemicals, X and Y, ready for use by all of the groups in Year 9 at a High School. He has mixed 6.0 kg which is $\frac{1}{4}$ of X and $\frac{3}{4}$ of Y. He realises that he has used the wrong mix and, rather than waste the chemicals he has used so far, he is going to add some more of chemical X so that the mix consists of 40% of X and 60% of Y.

What mass of chemical X must he add?

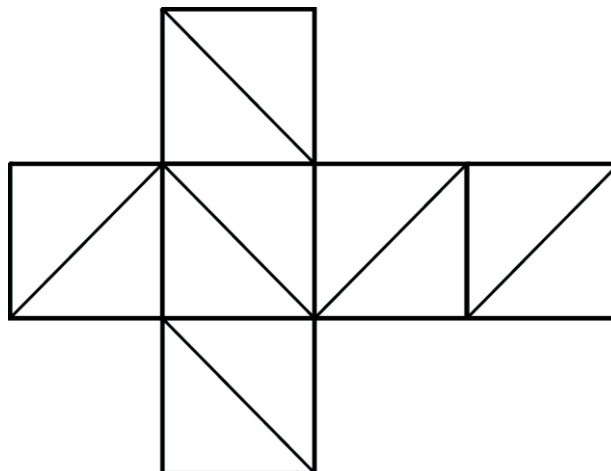
- A** 1.0 kg
- B** 1.5 kg
- C** 2.0 kg
- D** 2.5 kg
- E** 3.0 kg

- 25** Five friends wanted to go on holiday together, but they found it difficult to decide where to go. Jo and Mel both wanted to go to Portugal, with France as their second choice. Kim wanted to go to Majorca, while Lexy's first choice was Greece and Naz's was Tenerife. Naz and Kim both put France as their second choice, while Lexy gave it as her third choice, preferring Tenerife as her second choice. Kim and Mel put Tenerife as their third choice. Jo's third choice was Greece, and Naz's was Majorca.

They agreed to allocate three points for a 1st choice, two points for a 2nd choice and one point for a 3rd choice. The friends decided that they would not go anywhere which was not someone's first choice.

Where did they go on holiday?

- A** France
 - B** Greece
 - C** Majorca
 - D** Portugal
 - E** Tenerife
- 26** The following net is folded up to make a cube.



At how many corners of the cube do exactly two of the diagonal lines on the faces meet?

- A** 2
- B** 3
- C** 4
- D** 5
- E** 6

- 27** The Human Rights Act (HRA) should apply to soldiers in the UK and at their overseas bases but not to those fighting in the heat of battle. The concern is that the HRA could damage the effectiveness of the armed forces. Commanders making split-second decisions in battle may be paralysed by fear that those decisions will become the subject of legal actions.

Which one of the following best expresses the main conclusion of the above argument?

- A** The HRA should apply to British soldiers away from battle situations but not in them.
- B** The HRA could be a distraction to commanders in the heat of battle.
- C** The HRA should not be applied to the armed forces.
- D** The need to make split-second decisions in battle is incompatible with the HRA.
- E** The introduction of the HRA would undermine the efficiency of the armed forces.

- 28** Increased wealth in many regions and an ever-growing population have produced an unprecedented demand for fish. This increased demand is occurring at a time when over 70% of the world's marine fish stocks are now overfished or already fished at full capacity. One possible solution is the continued expansion of aquaculture, a long-standing means of farming fish for human consumption. Controls must be put into place, however, to manage the potential environmental risks associated with fish farming, such as water pollution and transmission of disease to adjacent wild fish populations. Moreover, the aquaculture sector has yet to devise effective methods for rearing some commercially popular predator species, such as tuna, without having to feed them wild-caught fish, which contributes to the pressure on our oceans.

Which one of the following can be drawn as a conclusion from the above passage?

- A** We should encourage people to switch from consuming marine fish species to consuming freshwater fish species, such as those living in lakes and rivers.
- B** Nothing can be done to make fishing in the oceans less damaging to the state of fish stocks.
- C** In the long term, people may have to adopt a vegetarian diet due to the environmental problems associated with the production of all kinds of fish and meat products.
- D** At present, fish farms should avoid trying to rear predator fish, such as tuna.
- E** The farming of only some kinds of fish is likely to result in environmental damage.

- 29** A daily dose of chocolate could be the key to preventing Alzheimer's disease, according to recent research. Blood flow to the brain was boosted and memory improved among volunteers who drank two cups of hot chocolate a day over a thirty day period. They were tested for memory and thinking skills, and ultrasound measured the blood flow to the brain. Participants showed an average 8.3% improvement in blood flow and memory scores improved, with recall times falling from 167 to 116 seconds on average. The study suggests that drinking hot chocolate regularly could help keep the brain healthy.

Which one of the following is an assumption underlying the above argument?

- A** Eating chocolate would also have the same effect.
 - B** The sample size may have been too small to be significant.
 - C** The memory improvement would be permanent.
 - D** If regular amounts of chocolate are consumed over time, other health problems could arise.
 - E** Problems with general brain functioning are linked to the development of Alzheimer's disease.
- 30** There are two ways of scoring points in a ball game: a 'major' scores 5 points and a 'minor' scores 3 points.

In a match played yesterday, the Reds beat the Blues 77–52 despite the fact that the Blues scored exactly twice as many majors as minors, whilst the Reds scored exactly half as many majors as minors.

How many majors were scored altogether in yesterday's match?

- A** 9
- B** 12
- C** 15
- D** 18
- E** 21

- 31** The following ingredient and nutrition information (rounded to the nearest 0.1 g or 1 kcal) appears on a 300 g packet of oatcakes.

Each oatcake provides:

energy	53 kcal
fat	2.2 g
saturated fat	0.6 g
salt	0.2 g
sugars	0.3 g

Ingredients: oatmeal (77%), vegetable oils, wheat flour, sugar, salt, raising agent: sodium hydrogen carbonate.

Typical values per 100 g: energy 1792 kJ, 427 kcal; protein 10.7 g; carbohydrate 56.45 g of which sugars 2.4 g, starch 53.7 g; fat 17.6 g of which saturates 5.0 g, mono-unsaturates 7.9 g, polyunsaturates 4.5 g; fibre 8.9 g; salt 1.4 g of which sodium 0.6 g.

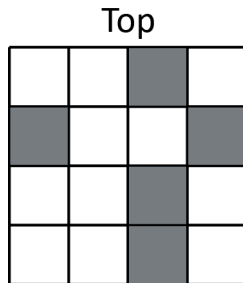
How many oatcakes are there in a packet?

- A** 7
- B** 8
- C** 21
- D** 24
- E** 27

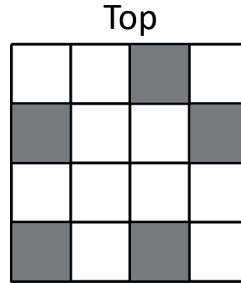
- 32** Instructions were given to shade 5 particular squares on a grid of 16 squares. One student shaded in the squares as instructed, but the other four got exactly 1 square wrong.

Which one of the five grids below shows the correct shading?

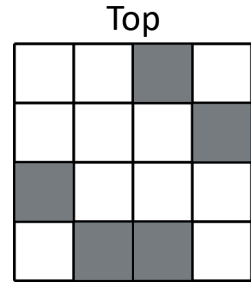
A



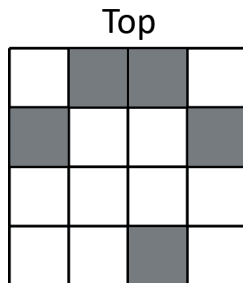
B



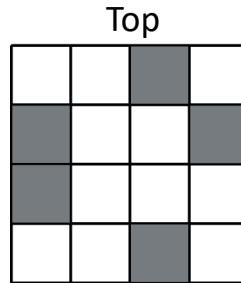
C



D



E



- 33** Couples who have more than two children are being ‘irresponsible’ by creating an unbearable burden on the environment, the government’s Sustainable Development adviser has warned. The adviser says that curbing population growth through contraception must be at the heart of policies to fight global warming. Political leaders and ‘green’ campaigners should stop dodging the issue of environmental harm caused by an expanding population. Each baby born in the UK will, during his or her lifetime, burn carbon roughly equivalent to 2½ acres of woodland – an area the size of Trafalgar Square. The UK population, now 62 million, will exceed 70 million by 2028. On average, women born outside the UK have 2.5 children compared with 1.7 for those born in the UK. The global population of 7 billion is expected to rise to 9.2 billion by 2050. Governments of both developed and developing nations must act to limit family size if they are serious about reducing energy consumption.

Which one of the following, if true, most strengthens the above argument?

- A** Large families are the norm in many developing nations, often for good economic reasons.
- B** Methods of reducing carbon footprint by other means are being developed.
- C** Many babies are born to men and women who did not intend or wish to become parents.
- D** Governments of developed nations will meet fierce resistance to plans to limit family size.
- E** Many men and women are unable to have children.

- 34** Television has had an adverse effect on family communication. Why? Because instead of talking together, as they did in the past, families now tend to sit round the small, or not-so-small, screen. They watch and listen rather than discuss. They are passive rather than active. Instead of participating, they are content to be entertained. Consequently, television dampens people's ability to think for themselves.

Which one of the following identifies a flaw in the argument above?

- A** The initial assertion is contradicted by the conclusion.
- B** The reasons are not relevant to the stated conclusion.
- C** It makes a generalisation on the basis of a particular example.
- D** It assumes that what was right in the past is right for the present.
- E** The argument is circular in that it assumes what it sets out to conclude.

- 35** We need to change science lessons so that they give children a correct view of modern science. Children are often taught in science lessons that matter can exist in three different states – solid, liquid and gas. However, developments in science suggest that this is far too simple a picture. Increased knowledge of the universe has shown that many other states of matter exist, for example, plasma and liquid crystal. Plasma is thought to be the state of 99% of matter in the universe, so the traditional states of matter are in a very small minority. So the traditional view is giving children a false, indeed unscientific, view of the universe.

Which one of the following best expresses the main conclusion of the above argument?

- A** School science has failed to keep up with modern scientific developments.
- B** School science gives an over-simplistic view of the nature of matter.
- C** School science gives children an incorrect view of the universe.
- D** School science suggests matter is made up of three different states.
- E** School science should be updated so that it reflects modern science.

- 36** Fergus Castle is a tourist attraction on a small island off the coast of the mainland. A ferry service runs between the mainland and the island, and takes 40 minutes to make a single journey in either direction. There is a turnaround time of 5 minutes at the end of each single journey. Each day, ferries leave the mainland every 20 minutes, at 5, 25 and 45 minutes past each hour, starting at 09:05. Ferries leave the island at 15, 35 and 55 minutes past each hour, starting at 09:15.

What is the minimum number of boats needed?

- A** 3
- B** 4
- C** 5
- D** 6
- E** 7

- 37** The table below shows the numbers of pupils and teachers in all UK schools in 2003:

	<i>pupils (thousands)</i>	<i>teachers (thousands)</i>
England North	2,418	132
England Midlands	1,613	88
England East	900	50
England London	1,173	66
England South	2,160	121
Wales	497	26
Scotland	893	59
Northern Ireland	341	21

Which region had the lowest ratio of pupils per teacher?

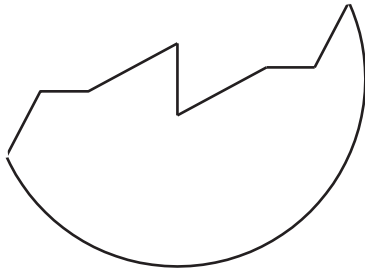
- A** England Midlands
- B** England South
- C** Wales
- D** Scotland
- E** Northern Ireland

- 38** When a mixed doubles tournament is held at my tennis club, partners are chosen by the following method.

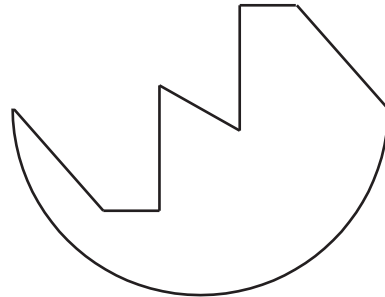
The appropriate number of tokens, all with a different shape, are placed into a box, and the male participants all pick one out. Each token has an identical 'twin' in a second box, from which the female participants all select one. Each pair of identical tokens fit together to make a complete disc. Couples with identical tokens partner each other in the tournament.

Which one of the following can **not** be a token used by my tennis club?

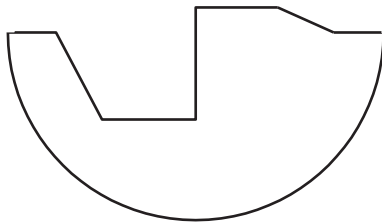
A



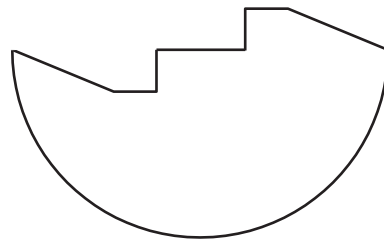
B



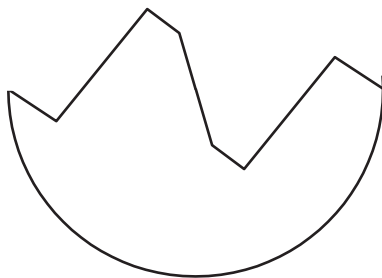
C



D



E



- 39** A pioneering scheme started two years ago in Cambridgeshire assigns an individual caseworker to the most vulnerable homeless people. The caseworker helps the homeless person navigate through the health, justice and housing systems until his or her life improves. It has already shown that an average of £1000 a month per homeless person has been saved – money that would otherwise have been spent on providing emergency support.

Which one of the following is a conclusion that can be drawn from the above passage?

- A** Individual case workers should be assigned to homeless people.
- B** Vulnerable homeless people are costing too much.
- C** Some systems are hard for homeless people to deal with.
- D** Homeless people rely on emergency support at present.
- E** The lives of homeless people are improved when they can easily access support.

- 40** Government advice on alcohol drinking limits is based on studies carried out twenty-five years ago. It has often been expressed in terms of a maximum number of units per day. But advising people about a daily rate implies that drinking alcohol every day is acceptable, when up-to-date research suggests that the body needs more 'recovery time' than one day. Health promotion advice should avoid being so simple that it inadvertently encourages unhealthy behaviour. Better to have more complex messages than simple messages which promote unhealthy behaviour.

Which one of the following is an assumption underlying the above argument?

- A** The research carried out twenty-five years ago is no longer valid.
- B** Drinking alcohol every day is common practice.
- C** People always follow the advice of health promotion messages.
- D** The government should regularly revise its advice on all health issues.
- E** Complex health promotion messages will be read and understood.

- 41** Studies of fossilised remains indicate that, every 20 to 30 million years, life on Earth experiences a sudden and mass extinction of all or most of its dominant species. Yet, in each case, within some 5 to 10 million years the diversity of species on the planet is as great, if not greater, than it had been previously, since the demise of the dominant species allows more minority species to flourish. Whatever disasters we may wreak on the planet, life in the long term will not only survive but actually increase in richness and diversity.

Which one of the following, if true, most weakens the above argument?

- A** The consequences of a global nuclear holocaust are not known.
- B** It can be difficult to draw precise conclusions about dates from fossil records.
- C** Human technology will soon be advanced enough to prevent most natural catastrophes.
- D** Some species are able to withstand the most extreme forms of environmental change.
- E** Some species have died out due to dramatic changes in climate.

- 42** Joan has a cat called Tibber.

Every day Tibber is fed 2 sachets of wet food and 25 grams of dry food.

For some time, Joan has bought the cat food from the local pet shop where one box of 12 sachets costs £12.00 and one 400 gram packet of dry food costs £4.00.

Joan has now decided to buy all of the cat food from an online distributor.

Four boxes, each of 24 sachets of wet food, will cost £62.40, and one 2 kilogram packet of dry food will cost £16.00.

How much money will Joan save each day on cat food when she buys it from the online distributor rather than the local pet shop?

- A** 40p
- B** 75p
- C** 93p
- D** £1.50
- E** £2.25

- 43** A particular computer game involves the capturing of three types of mythical creatures: Arps, Orps and Urps.

Arps have 6 legs, 3 horns and a tail.

Orps have 4 legs and 2 horns, but no tail.

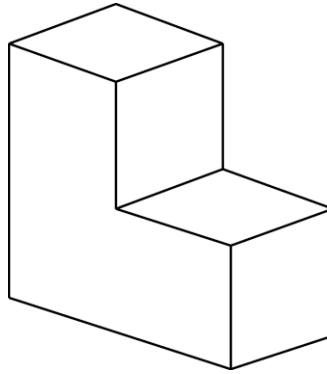
Urps have 3 legs and a tail, but no horns.

The last time Billy played this game he captured 45 creatures with a total of 222 legs, 99 horns and 33 tails.

How many of the 45 creatures that Billy captured were Urps?

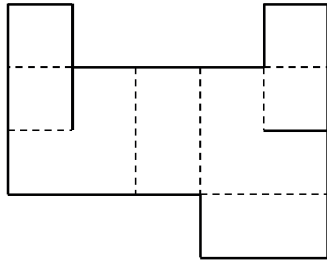
- A** 8
- B** 12
- C** 15
- D** 20
- E** 25

- 44 The drawing below shows an 'L' shaped box.

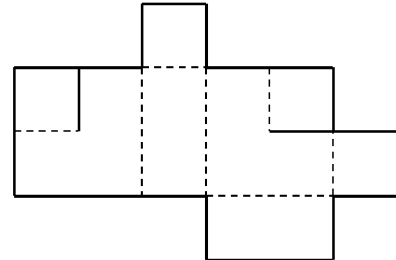


Which one of the nets below **cannot** be folded up to form the 'L' shaped box? (A dotted line indicates a fold and a solid line indicates a cut.)

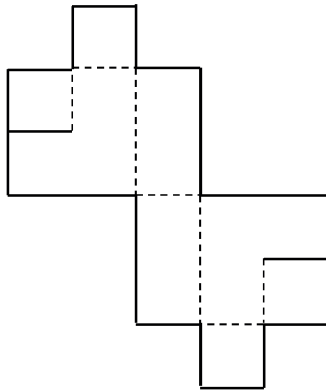
A



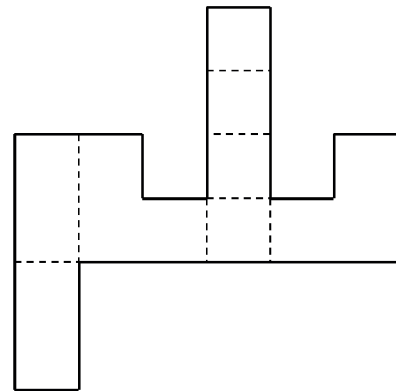
B



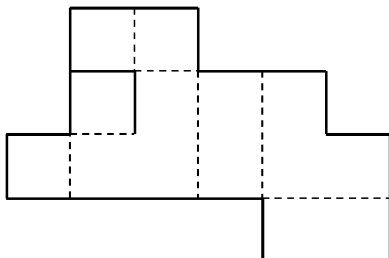
C



D



E



- 45** In the 1990s, there were two lines of argument against buying properties to let them out instead of living in them yourselves. One was the moral argument that you were driving the boom for your own profit and making houses unaffordable for everyone else; the other was the practical argument that houses were a risky investment. Despite these objections, the buy-to-let market continued to grow and now, twenty years later, the result is that the housing market is totally inaccessible to most of a generation. Rents in London have gone up eight times faster than wages. Plainly, no social good will come of this. Rents will continue to rise, and people who live in London will see their finances become more and more precarious.

Which one of the following best expresses the main conclusion of the above argument?

- A** Buy-to-let has made housing unaffordable in London.
- B** Rent increases have exceeded wage increases in London.
- C** No social good will come of buy-to-let.
- D** Rents in London will continue to rise.
- E** Investing in buy-to-let is immoral.

- 46** When either freedom of speech or freedom of assembly is present in society, democratic government inevitably results. If you live under a dictatorship, you must therefore lack both of these key liberties.

Which one of the following most closely parallels the kind of reasoning used in the above argument?

- A** If a house lacks both window locks and a burglar alarm, the insurance application will inevitably be turned down. Since your claim has been rejected, your house must have neither window locks nor burglar alarm.
- B** If heat or light is emitted by a body, then its energy decreases. It follows that, if a body's energy remains constant, it has emitted neither heat nor light.
- C** Anybody over 21 who holds a university degree or equivalent is eligible for selection. Since Greg is 19 and still an undergraduate, he cannot be eligible.
- D** Either the fans are very loyal or they don't mind the team losing week after week. No fans like to watch their team being beaten, so they must be very loyal.
- E** With water and sunlight this plant will thrive, since both water and sunlight are necessary for a plant's survival.

- 47** In a situation where every course of action is immoral, there still remains the ability to act for the greatest good for the greatest number. Therefore, the outsiders ought to be eliminated at the least possible cost and with the least possible delay. I am sorry to arrive at that conclusion, but it is the right step.

Which one of the following best illustrates the principle contained in the above argument?

- A** The swiftest and cheapest option is often the least immoral action.
 - B** The action that harms the least number of people is the best possible action.
 - C** Where all options are immoral, it is necessary to consider cost and speed.
 - D** An action cannot be considered totally immoral if it is the right action.
 - E** An action cannot be considered totally immoral if it is done for the greater good.
- 48** Each word in a word game is scored by adding up the values of its letters. Each letter has the same value whenever it appears but different letters have different values. I know the word values for TEAR, RITE, TREE and RAT, but none of the letter values.

How many of the letter values can I now calculate?

- A** 0
- B** 1
- C** 2
- D** 3
- E** 4

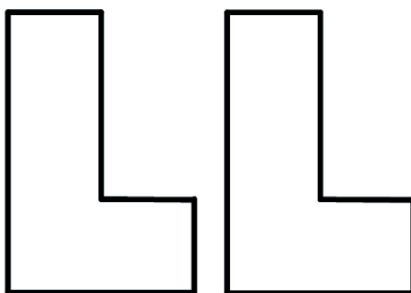
- 49** Nathan lives in London. His older brother Mark lives in San Diego, his younger brother Ben lives in Barcelona and his sister Isabel lives in Nairobi. Nathan is trying to arrange an online call between all four siblings. Each of the siblings has agreed to be available between 08:00 and 20:00 local time.

San Diego is 8 hours behind London time.
Barcelona is 1 hour ahead of London time.
Nairobi is 2 hours ahead of London time.

For how many hours during a 24-hour period are at least three of the four siblings able to be online at the same time?

- A** 8
- B** 9
- C** 10
- D** 11
- E** 12

- 50 Marina purchased a pair of L-shaped tables thinking that they would add an unusual touch to her conference room.

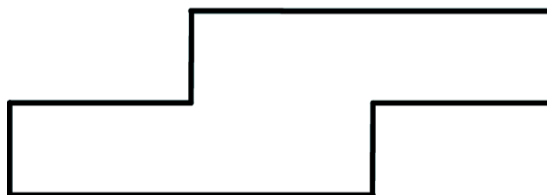


Which one of the following arrangements could **not** be made using the two L-shaped tables?

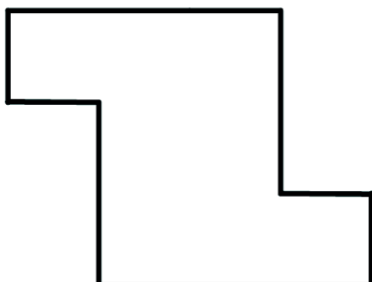
A



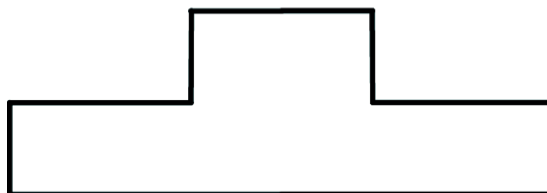
B



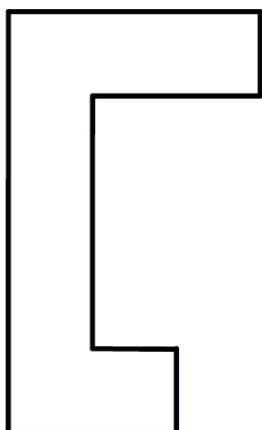
C



D



E



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