

Entrance exam for pilot trainees
I English

Part One: Vocabulary

Synonyms

Directions: Choose the word that is *most nearly similar* in meaning to the word in capital.

- | | | | | |
|--------------|---------------|--------------|--------------|-----------------|
| 1. IMPASSE | A. Imposter | B. Post | C. Done | D. standoff |
| 2. AROUSE | A. Round | B. Rise | C. Stimulate | D. Fear |
| 3. PROBE | A. Search | B. Probable | C. Robe | D. Right |
| 4. SPURN | A. Acceptance | B. Large | C. sounded | D. rejected |
| 5. PONDER | A. Consider | B. Peace | C. Fine | D. Paint |
| 6. ENVISAGE | A. Envy | B. Visualize | C. Savage | D. Visual |
| 7. TREAT | A. Maintain | B. Team | C. Tear | D. Extravagance |
| 8. FOUL | A. Soiled | B. Clarity | C. Fear | D. Dear |
| 9. PRUNE | A. Prudent | B. Pour | C. Gain | D. Trim |
| 10. POMP | A. Spectacle | B. Possess | C. Rise | D. Fain |
| 11. DREAD | A. Fear | B. Greed | C. Bear | D. More |
| 12. RESOLUTE | A. Feeble | B. Firm | C. Resort | D. Tout |

Part Two: Sentence Completion

Instruction: Complete the following sentences by choosing the correct answer from the options given.

1. Dentists strongly suggest brushing teeth using toothpaste to them from decaying.

- A) Defer B) Protect C) Guard D) Waste

2. He has recently drawing to make himself relaxed.

- A) Adopted B) Relinquished C) Adjusted D) Benefited

3. Lots of crafts like weaving are slowly being revived.

- A) Habitual B) Vivid C) Hard D) Traditional

4. I whether our opponent company will make any profit at all.

- A) Expect B) Claim C) Doubt D) Admit

5. The rise in the prices her to sell her share for a nice profit.

- A) Achieved B) Annoyed C) Meditated D) Advised

6. Should that company wish to attract workers, it ought to the pay.

- A) Lower B) Raise C) Spread D) Rise

7. The kidney transplant operation was complicated, so the operating team had to take special care to ensure its success.

- A) Slightly B) Nearly C) Immediately D) Extremely

8. Before the invention of refrigeration, the of fish and meat must have been a problem.

- A) Treatment B) Preservation C) Addition D) Presentation

9. The police finally arrested the criminal.

- A) Famous B) renowned C) respectable D) notorious

10. I had to brake suddenly when the other driver didn't signal to show his to turn left.

- A) Plan B) Intention C) Promise D) Precaution

11. We are not sure that he will be able to the shock of going bankrupt.

- A) Get over B) Put through C) Take up D) Depend upon

12. He should spend nearly two years working in Asia so that he can discover how things overseas.

- A) Manage B) Execute C) Operate D) Propose

13. Do you realize that it takes years to as a teacher?

- A) Qualify B) Complete C) Accept D) Regard

14. Because the water there is, the area has been evacuated based on an official decree.

- A) Purified B) diverted C) predicted D) contaminated

15. The accident would not have occurred but the truck driver had been

- A) Alert B) Negligent C) Careful D) Discrete

Part Three: Grammar and Usage:

Instruction: Choose the correct word from the options given to fill in the gap in each sentence below.

1. If she _____ his financial situation, she would have helped him out

- A) knew B) had been knowing C) had known D) have known

2. I'll _____ their cat while they are away on holiday.

- A) be looking into B) be looking at C) be looking after D) be looking over

3. He made his children _____ their homework every afternoon.

- A) do B) to do C) studied D) to study

4. The test was _____ difficult she had problems finishing it on time.

- A) such B) a C) as D) so

5. By the time she arrives, we _____ our homework.

- A) finish B) will have finished C) will finish D) were finished

6. She _____ lunch by the time we arrived.

- A) had finished B) finished C) have finished D) finishing

7. The sun _____ at 9 last night.

- A) sat B) setted C) set D) was setting

8. When I stopped _____ to Mary, she was picking some flowers in her garden.

- A) speaking B) speak C) to stop D) spoke

9. Despite _____ hard, he failed the exam.

- A) he studied B) he has studied C) studying D) study

10. That room _____ for a meeting today.
A) is used B) is being used C) used D) is using
11. We _____ tennis every day when we were young.
A) use to play B) would play C) were playing D) were used to play
12. He'll give you a call as soon as he _____.
A) will arrive B) arrives C) is arriving D) is going to arrive.
13. Had he been so decisive none of these _____ happened?
A) Would have B) Will C) Would D) May

Part Four: Reading Comprehension

Read the following text carefully and answer the questions that follow accordingly.

The New Airbus

The Airbus A380 is a double-deck, wide-body, and four-engine airliner manufactured by the European corporation Airbus, a subsidiary of EADS. The largest passenger airliner in the world, the A380 made its maiden flight on 27 April 2005 from Toulouse, France, and made its first commercial flight on 25 October 2007 from Singapore to Sydney with Singapore Airlines. The aircraft was known as the *Airbus A3XX* during much of **its** development phase, but the nickname *Superjumbo* has since become associated with it.

The A380's upper deck extends along the entire length of the fuselage, and its width is equivalent to that of a wide body aircraft. This allows for an A380-800's cabin with 5,146 square feet of floor space; 49% more floor space than the next-largest airliner, the Boeing 747-400 with 3,453 square feet, and provides seating for 525 people in a typical three-class configuration or up to 853 people in all-economy class configurations. The postponed freighter version, the A380-800F, is offered as one of the largest freight aircraft, with a payload capacity exceeded only by the Antonov An-225. The A380-800 has a design range of 15,200 km, sufficient to fly from New York to Hong Kong for example, and a cruising speed of Mach 0.85 (about 900 km/h or 560 mph at cruising altitude).

1. Which one is not true about Airbus A380
A. upper deck extends along the entire length of the fuselage
B. manufactured by the European corporation Airbus
C. is one of the largest freight aircraft,
D. made its first commercial flight on 25 October 2007 from Singapore to Sydney
2. According to the text the Antonov An-225
A. has a design range of 15,200 km
B. Its payload capacity is exceeded by A380
C. Its payload capacity is exceeded by A380-800F
D. Its payload capacity exceeds the A380-800F

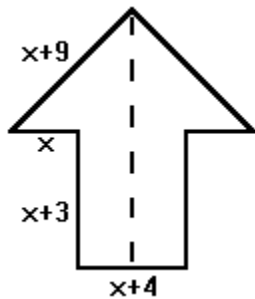
3. Which id different
- A. The Airbus A380
 - B. *Superjumbo*
 - C. *Airbus A3XX*
 - D. A380-800F
4. Which one is true according to the text?
- A. Boeing 747-400 has more floor space than Airbus A380
 - B. Boeing 747-400 has 49% more floor space than the next-largest airliner the Airbus A380
 - C. The Boeing 747-400 can seat 853 people in all-economy class configurations
 - D. 853 people in all-economy class configurations
5. Choose the correct match form the options given below for: **Commercial flight, maiden flight, Mach 0.85**
- A. 25 October 2007, 27 April 2005, cruising speed
 - B. 27 April 2005, cruising speed, 25 October 2007
 - C. Cruising speed, 27 April 2005, 25 October 2007
 - D. 20 October 2007, 27 April 2005, cruising speed

Part II: Mathematics

Directions: Choose the best alternative among the given choices for the following 25 questions.

1. Which number(s) is(are) equal to the quarter of its (their) square?
A. 0 and 1 B. 0 and 2 C. 0 and 4 D. 1 and 2
2. Tom travels 60 miles per hour going to a neighboring city and 50 miles per hour coming back using the same road. He drove a total of 5 hours away and back. What is the distance from Tom's house to the city he visited?(round your answer to the nearest mile).
A. 136miles B. 163miles C. 123miles D. 130miles
3. Find an equation of the line containing $(-4, 5)$ and perpendicular to the line $5x - 3y = 4$.
A. $\frac{1}{5}y + 3x = 13$ B. $y + \frac{1}{3}x = 13$ C. $5y + 3x = 13$ D. $5y + 5x = 13$
4. A rectangle field has an area of 300 square meters and a perimeter of 80 meters. What are the length and width of the field respectively?
A. 30 and 10 B. 20 and 15 C. 50m and 6m d. 25 and 12
5. A rectangular garden in Mrs Dorothy's house has a length of 100 meters and a width of 50 meters. A square swimming pool is to be constructed inside the garden. Find the length of one side of the swimming pool if the remaining area (not occupied by the pool) is equal to one half the area of the rectangular garden.
A. 30meters B. 25meters C. 20meters D. 50meters
6. The numbers 2 , 3 , 5 and x have an average equal to 4. What is x?
A. 2 B. 6 C. 4 D. 5
7. The numbers x , y , z and w have an average equal to 25. The average of x , y and z is equal to 27. Find w.
A. 23 B. 19 C. 25 D. 29
8. A is a constant. Find A such that the equation $2x + 1 = 2A + 3(x + A)$ has a solution at $x = 2$.
A. $\frac{1}{5}$ B. $-\frac{1}{5}$ C. 5 D. -5
9. Find the length and width of a rectangle that has a length 3 meters more than its width and a perimeter equal in value to its area ?
A. $L = 2, W = 3$ B. $L = 6, W = 3$ C. $L = 3, W = 2$ D. $L = 5, W = 3$

10. Given the symmetric shape below with a known perimeter of 77, find the area of the shape.



- A. 289.84 B. 238.45 C. 345.5 D. 200
11. A real estate agent received a 6% commission on the selling price of a house. If his commission was \$8,880, what was the selling price of the house?
- A. \$53280 B. \$1480 C. \$148,000 D. \$8880
12. An electric motor makes 3,000 revolutions per minutes. How many degrees does it rotate in one second?
- A. 180,000 degrees / second B. 18,000 degrees / second
- C. 50 degrees / second D. 500 degrees / second
13. If a tire rotates at 400 revolutions per minute when the car is traveling 72km/h, what is the circumference of the tire?
- A. 0.3meters B. 333.3meters C. 3meters D. 33.3meters
14. In a shop, the cost of 4 shirts, 4 pairs of trousers and 2 hats is \$560. The cost of 9 shirts, 9 pairs of trousers and 6 hats is \$1,290. What is the total cost of 1 shirt, 1 pair of trousers and 1 hat?
- A. \$150 B. \$170 C. \$200 D. \$250
15. Four children have small toys. The first child has $\frac{1}{10}$ of the toys, the second child has 12 more toys than the first, the third child has one more toy of what the first child has and the fourth child has double the third child. How many toys are there?
- A. 20 toys B. 25 toys C. 40 toys D. 30 toys
16. A class average mark in an exam is 70. The average of students who scored below 60 is 50. The average of students who scored 60 or more is 75. If the total number of students in this class is 20, how many students scored below 60?
- A. 5 B. 4 C. 6 D. 3

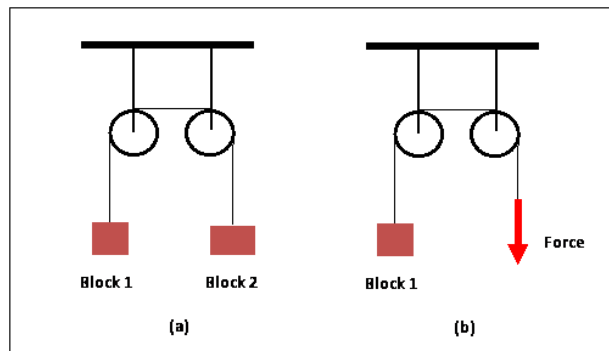
17. An airplane flies against the wind from A to B in 8 hours. The same airplane returns from B to A, in the same direction as the wind, in 7 hours. Find the ratio of the speed of the airplane (in still air) to the speed of the wind.
A. 0.06 B. 15 C. 8/7 D. none
18. Find the point(s) of intersection of the parabola with equation $y = x^2 - 5x + 4$ and the line with equation $y = 2x - 2$
A. (1, 0) and (6, 20) B. (1, 1) and (6, 10)
C. (2, 0) and (6, 10) D. (1, 0) and (6, 10)
19. Find the constant k so that : $-x^2 - (k + 7)x - 8 = -(x - 2)(x - 4)$
A. 13 B. -13 C. 2 D. -2
20. Factor the expression $6x^2 - 13x + 5$
A. $(3x - 4)(2x - 1)$ B. $(2x - 5)(2x - 1)$ C. $(x - 5)(2x - 1)$ D. $(3x - 5)(2x - 1)$
21. Find all zeros of the polynomial $P(x) = x^3 - 3x^2 - 10x + 24$ knowing that $x = 2$ is a zero of the polynomial.
A. 4, -3 and -2 B. 4, 3 and 2 C. 4, -3 and 2 D. -4, -3 and 2
22. If x is an integer, what is the greatest value of x which satisfies $5 < 2x + 2 < 9$?
A. 3 B. 2 C. 5 D. 4
23. Sets A and B are given by: $A = \{2, 3, 6, 8, 10\}$, $B = \{3, 5, 7, 9\}$. Find the intersection of sets A and B.
A. {3,5} B. {3} C. {2,5,9} D. {7}
24. Simplify $|-x^2 + 4x - 4|$.
A. $-(x - 2)^2$ B. $(x - 2)^2$ C. $(x - 3)^2$ D. $-(x - 3)^2$
25. Simplify $8x^3 / 2x^{-3}$
A. $4x^6$ B. 4 C. $16x^6$ D. None

Part III: Physics

Choose the best alternative among the given choices for the following 25 physics questions.

1. A person goes out for a bike ride to a nearby town. A record of the trip is as follows: 30 minutes at 30 km/hour, 15 minutes at 40 km/h, 5 minutes at 0 km/h for a break, and 20 minutes at 15 km/h. What is the distance the person traveled?
A. 1800km B. 30km C. 300km D. 180km
2. Referring question number 1, what is the average velocity?
A. 27.5km/h B. 35.5km/h C. 25.7km/h D. 30km/h
3. A car travels up a hill at a constant speed of 37 km/h and returns down the hill at a constant speed of 66 km/h. calculate the average speed for the whole trip.
A. 47.4km/h B. 51.5km/h C. 40km/hr D. 45km/hr
4. A 8 kg block is at rest on a horizontal floor. If you push horizontally on the 8 kg block with a force of 20 N, it just starts to move.
A. 0.11 B. 0.022 C. 0.31 D. 0.255
5. Referring question number 4 if a 10.0 kg block is stacked on top of the 8 kg block what is the magnitude F of the force, acting horizontally on the 8 kg block as before, that is required to make the two blocks start to move? (take $g = 9.8\text{m/s}^2$)
A. 45N B. 19.4N C. 3.88N D. 54.68N
6. A car is accelerating at 12m/s^2 . Find its acceleration in km/h^2 .
A. 15520km/hr² B. 155520 km/hr² C. 12960 km/hr² D. None
7. It takes you 9.5 minutes to walk with an average velocity of 1.2 m/s to the north from the bus stop to museum entrance. What is your displacement?
A. 11.4m B. 72m C. 5415m d. 541.5m

8. Nerve impulses typically travel through the body at about 150 miles/hour. Imagine dropping a brick from one meter onto your big toe. Compare the time it takes for the brick to fall with the time it takes for the signal to get from your toe to your brain. Assume you are 1 meter tall. (take $g = 9.8\text{m/s}^2$)
- It takes 17.3 times longer for the brick to fall than it takes for the signal to reach your brain.
 - It takes 20 times longer for the brick to fall than it takes for the signal to reach your brain.
 - It takes 15.3 times longer for the brick to fall than it takes for the signal to reach your brain.
 - None.
9. As part *a* of the drawing shown, two blocks are connected by a rope that passes over a set of pulleys. The block 1 has a weight of 400 N, and the block 2 has a weight of 600 N. The rope and the pulleys are mass less and there is no friction. What is the acceleration of the lighter block?



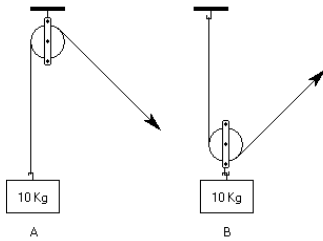
- 2.5m/s^2
 - 1.96m/s^2
 - 3.96m/s^2
 - 3m/s^2
10. A car is initially traveling due north at 23 m/s. Find the velocity of the car after 4 s if its acceleration is 2m/s^2 due north.
- 46m/s
 - 36m/s
 - 15m/s
 - 31m/s
11. For question number 10, Find the velocity of the car after 4 s if its acceleration is instead 2m/s^2 due south
- 15m/s
 - 31m/s
 - 36m/s
 - 46m/s
12. If a 5 tons beam is raised 6 meters in 6 seconds, what is the work done?
- 1,764,000J
 - 294,000J
 - 2,940,000J
 - 176,400J
13. A tension of 6000 Newton's is experienced by the elevator cable of an elevator moving upwards with an acceleration of 2m/s^2 . What is the mass of the elevator? (take $g = 9.8\text{m/s}^2$)
- 3000kg
 - 12000kg
 - 508kg
 - 612.25kg

14. A bicycle is moving at 10 m/s. What is the angular speed of its tires if their radius is 30 cm?
 A. 300rad/sec B. 30rad/sec C. 9000rad/sec D. 33rad/sec
15. A soccer ball of diameter 35 cm rolls without slipping at a linear speed of 2 m/s. Though how many revolutions has the soccer ball turned as it moves a linear distance of 20 m?
 A. 1400 turns B. 350 turns C. 18 turns D. 180turns
16. A block of mass 5 kg lies on a horizontal table. The block is at rest. The only forces acting on the block are the force due to gravity and the normal force from the table. What is the magnitude of the friction force? (take $g = 9.8\text{m/s}^2$)
 A. 49N B. 10N C. 4.9N D. None
17. A car ($m = 2000\text{ kg}$) is parked on a road that rises 20 degrees above the horizontal. What are the magnitudes of (1) the normal force and (2) the static frictional force respectively that the ground exerts on the tires? (given $\sin 20 = 0.342$, and $\cos 20 = 0.939$)
 A. $1.8 \times 10^4\text{N}$, $6.7 \times 10^3\text{N}$ B. $6.7 \times 10^3\text{N}$, $1.8 \times 10^4\text{N}$
 C. 3.4×10^4 , $2.8 \times 10^3\text{N}$ D. None
18. A child throws a ball downward from a tall building. Note that the ball is thrown, not dropped and disregard air resistance. What is the acceleration of the ball immediately after it leaves the child's hand?
 A. 9.8m/s^2
 B. the initial velocity of the ball must be known to determine its acceleration
 C. both the initial and final velocities must be known to determine its acceleration
 D. all the mass, the initial and final velocities must be known to determine its acceleration
19. The tips of the blades in a food blender are moving with a speed of 20 m/s in a circle that has a radius of 0.06 m. How much time does it take for the blades to make one revolution?
 A. 0.38sec B. 0.019sec C. 2sec D. 0.2sec
20. An aircraft has a lift-off speed, 120km/h. What minimum constant acceleration does the aircraft require if it is to be airborne after a takeoff run of 240m?
 A. 2.3m/s^2 B. 3.2m/s^2 C. 33m/s^2 D. 23m/s^2

Mechanical Reasoning

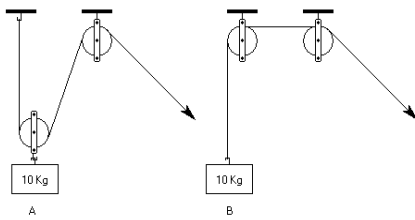
Choose the Best Answer and Mark on the Answer Sheet

1) Which weight requires the least force to move?



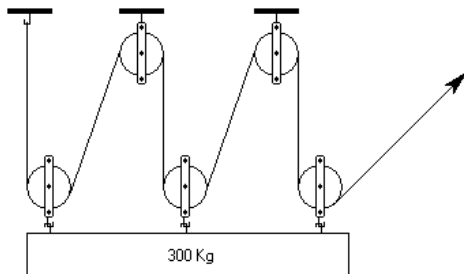
- A) A B) B C) Both require the same force

2) Which weight requires the least force to move?



- A) A B) B C) Both require the same force

3) How much force is required to move the weight?



- A) 100 N B) 150 N C) 50 N D) 60 N

- | | | | |
|-----------------|------------|-----------|----------------|
| A | B | C | D |
| anti c/w 10 rpm | c/w 10 rpm | c/w 5 rpm | anti c/w 5 rpm |

4) If gear X turns clockwise at a constant speed of 10 rpm. How does gear Y turn?



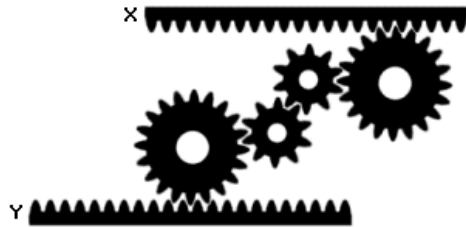
- | | | | |
|-----------------|------------|-----------|----------------|
| A | B | C | D |
| anti c/w 10 rpm | c/w 10 rpm | c/w 5 rpm | anti c/w 5 rpm |

5) If gear X turns clockwise at a constant speed of 10 rpm. How does gear Y turn?



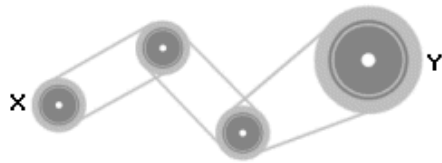
- | | | | |
|-----------------|------------|-----------|----------------|
| A | B | C | D |
| anti c/w 10 rpm | c/w 10 rpm | c/w 5 rpm | anti c/w 5 rpm |

6) If bar Y moves left a constant speed. How does bar X move?



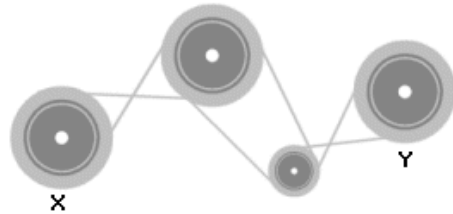
- A** Left, Faster **B** Right, Same **C** Left, Slower **D** Left, Same

7) If drive wheel X rotates clockwise at a speed of 10 rpm. How does wheel Y turn?



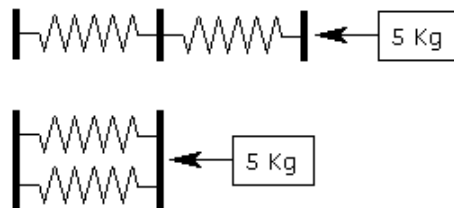
- A** anti c/w faster **B** c/w slower **C** c/w faster **D** anti c/w same

8) If drive wheel X rotates clockwise at a speed of 10 rpm. How does wheel Y turn?



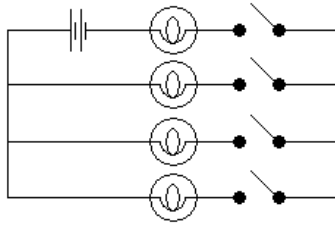
- A** anti c/w faster **B** c/w slower **C** c/w faster **D** anti c/w slower

9) A force of 5 Kg compresses the springs in series 10cm. What will be the total distance that the springs in parallel are compressed?



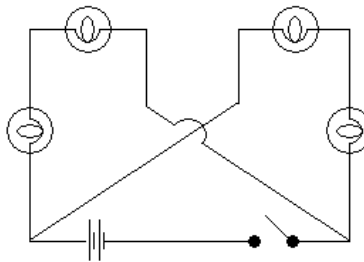
- A) 10 cms B) 2.5 cms C) 5 cms D) 7.5 cm

10) How many switches need to be closed to light up one bulb?



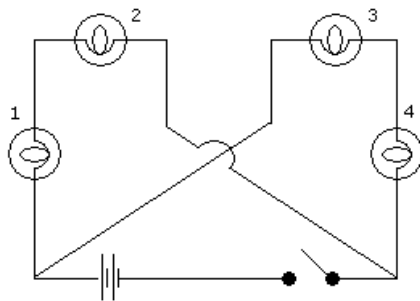
- A) 1 B) 2 C) 3 D) 4

11). How many bulbs will light up when the switch is closed?



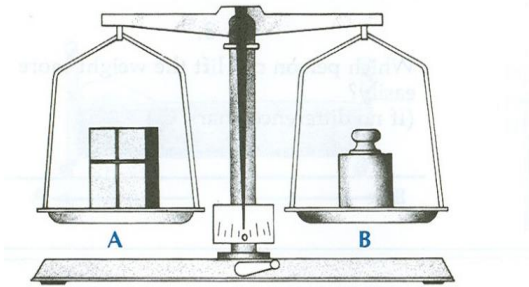
- A) 1 B) 2 C) 3 D) 4

12). If bulb 1 is removed, how many bulbs will light up when the switch is closed?



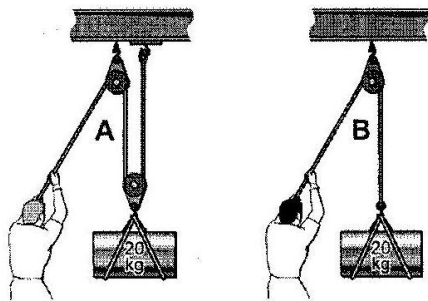
- A) 1 B) 2 C) 3 D) 0

13) Which weights more? (If equal, mark C.)

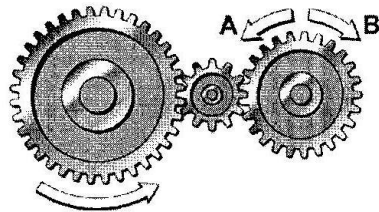


A. A B. B C. C

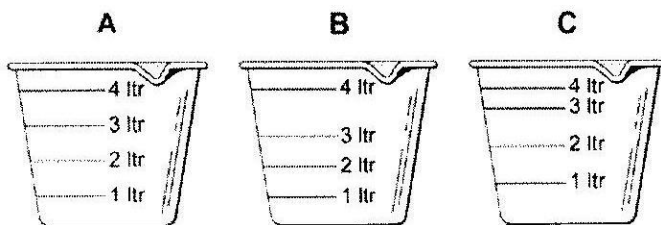
14) Which person must pull harder? (if no difference, mark C)



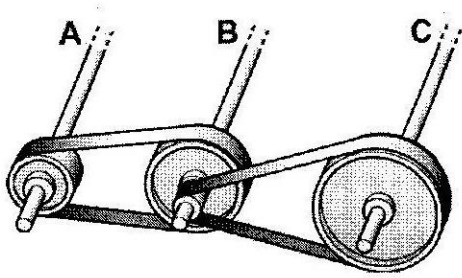
15) When the left- hand gear turns in the direction shown, which way does the right hand one turn? (if either, mark C)



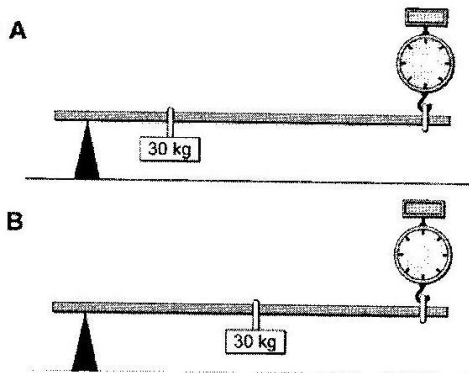
16) Which measure is marked properly?



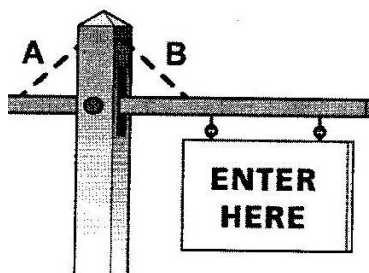
17) Which shaft will turn most quickly?



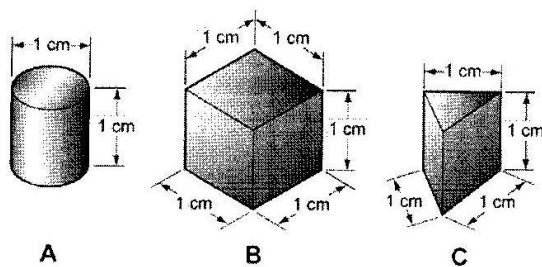
18) In which picture will the scales read lower (less weight)? (If equal mark C)



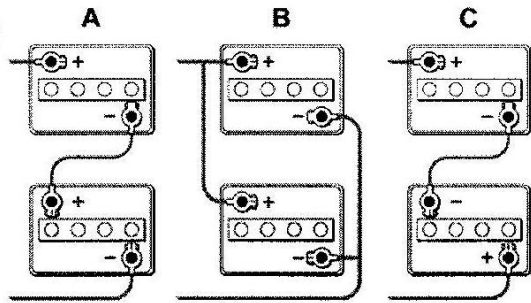
19) Where should a chain be attached to hold up the sign? (If either, mark C)



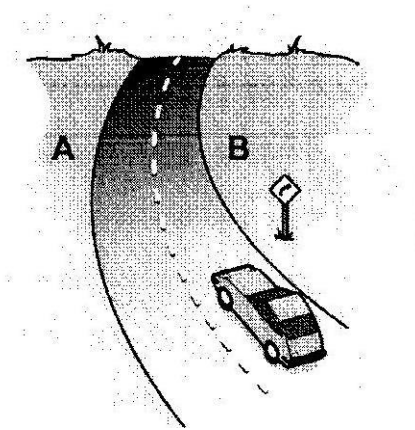
20) Which weighs most?



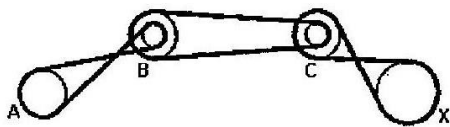
21) Which diagram shows two 6-volt batteries connected to give 12volts?



22) Of which side of the road is the car least likely to skid? (If no difference, mark C)

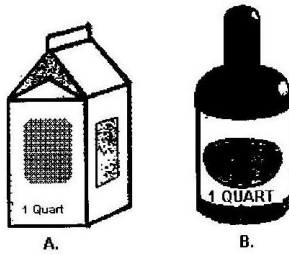


23) Which direction will pulley X be going?



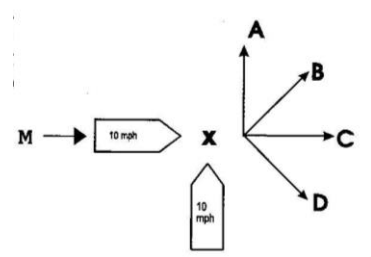
A) Same as B B) Same as C C) Same as A D. Same as B and C

24) Which holds more? (C if equal)



25) In which direction will boat M go if the two boats collide at point X?

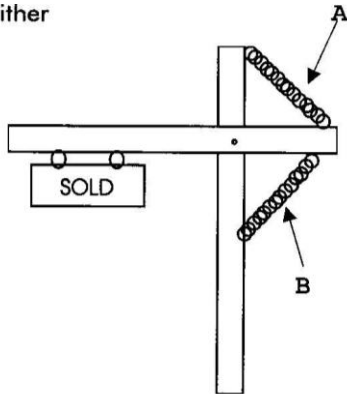
- A. A B. B C. C D. D



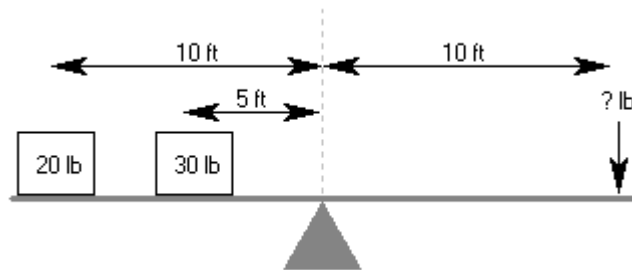
26) Which chain will hold the sign?

- A. A B. B C. Both D. Neither

d. Neither

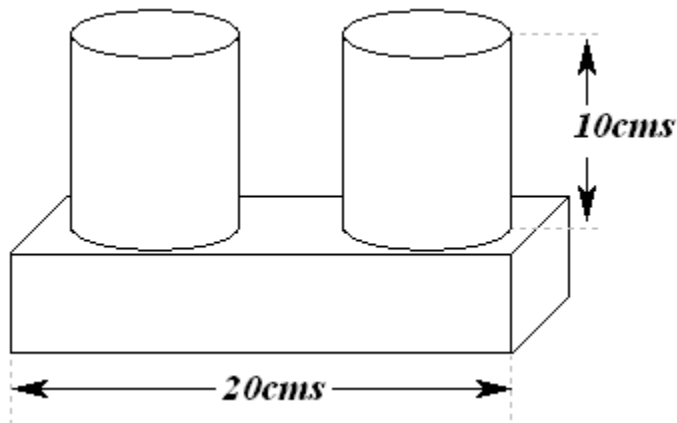


27) How much force is required to lift the weights?



- A) 25lbs B) 35lbs C) 40lbs D) 45lbs

- 28) The sketch shows a component made from 5cmX5cm square bar and 5cm diameter rod. The density of steel is 8g per cubic centimeter. For shipping purposes the components are packed into individual boxes before being packed into shipping crates measuring approximately 0.25m x 0.3m x 0.4m. Shipping crates are packed on pallets to a maximum weight of 800 Kg.

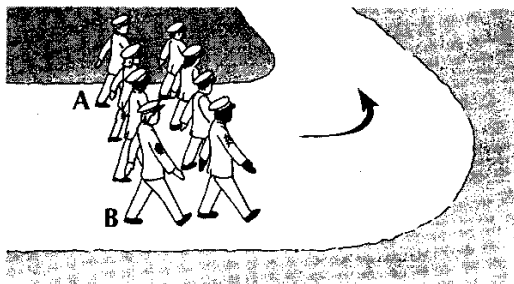


What is the approximate total volume of the component in cubic centimeters?

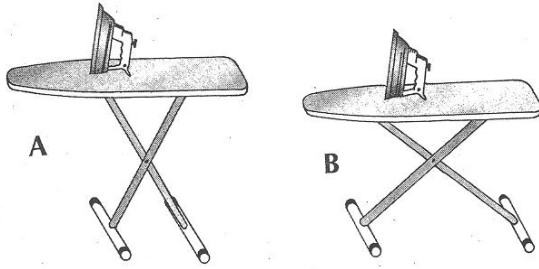
- | | | | |
|----------|----------|----------|----------|
| A | B | C | D |
| 892 | 788 | 967 | 422 |
- 29) What is the approximate weight of the component for the above question?

- | | | | |
|----------|----------|----------|----------|
| A | B | C | D |
| 72.4 Kg | 7.14 Kg | 7.34 Kg | 14.4 Kg |

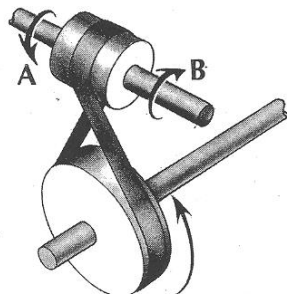
- 30) When these cadets march around the corner, which one goes farther? (If no difference, mark C.)



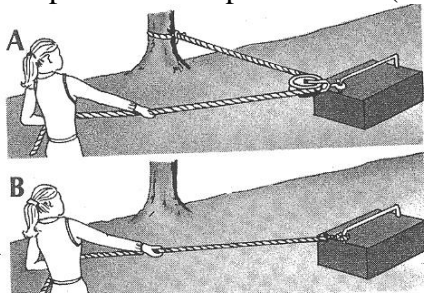
- 31) Which ironing board will tip over more easily? (If no difference, mark C.)



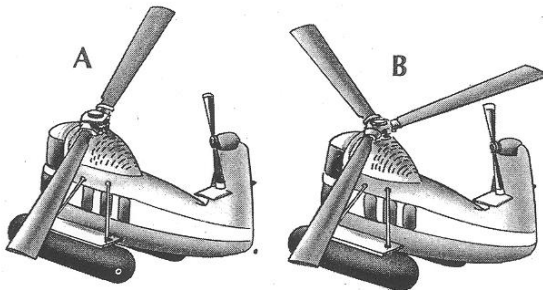
32) When the bottom pulley turns in the direction shown, which way does the top pulley turn? (If either, mark C)



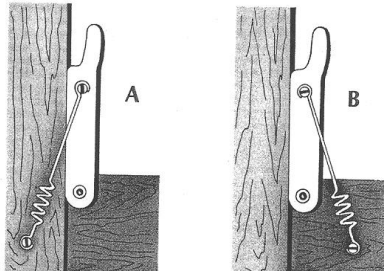
33) Which person has to pull harder? (If no difference, mark C.)



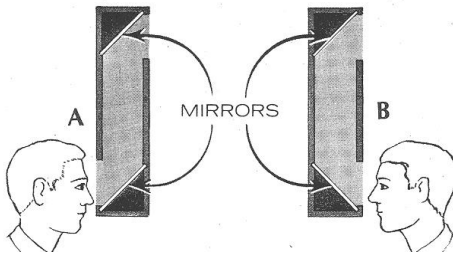
34) Which helicopter can lift the heavier load? (If equal, mark C.)



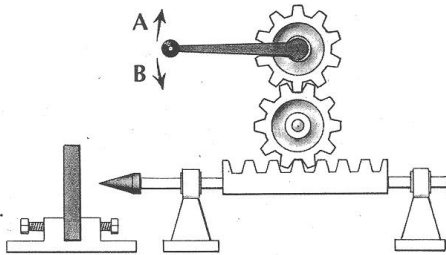
35) In which picture will the spring hold the handle where it is now? (If both, mark C.)



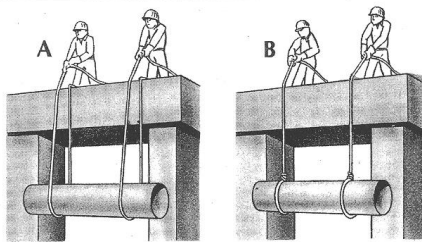
36) In which picture can the man see what is happening behind him? (If no difference, mark C.)



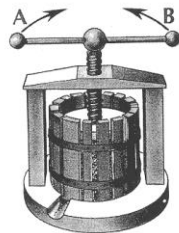
37) Which way should the handle be moved to push the point against the plate? (If either, mark C.)



38) Which picture shows the easier way to lift the pipe? (If no difference, mark C.)



39) Which way should the handle be turned to press juice from fruit? (if either, mark C.)



Answers

Mathematics

1. c
2. a
3. c
4. a
5. d
6. b
7. b
8. b
9. b
10. a
11. c
12. b
13. c
14. a
15. d
16. b
17. b
18. d
19. b
20. d
21. c
22. a
23. b
24. b
25. a

Physics

1. b
2. c
3. a
4. d
5. a
6. b
7. c
8. a
9. b
10. d
11. a
12. b
13. c
14. d
15. c
16. d
17. a
18. a
19. b
20. a

mechanical reasoning

Answers

1.b

2.a
3.c
4.a
5.d
6.d
7.b
8.d
90.c
10.b
11.d
12.b
13.c
14.b
15.a
16.c
17.a
18.a
19.b
20.b
21.a
22.b
23.c
24.c
25.b
26.b
27.b
28. a
29.b
30.b
31.a
32.b
33.b
34.b
35.a
36.b
37.b
38.a
39.a