

Part 1

1. Of the 65 cars on a car lot, 45 have air-conditioning, 30 have power windows, and 12 have both air-conditioning and power windows. How many of the cars on the lot have neither air-conditioning nor power windows?

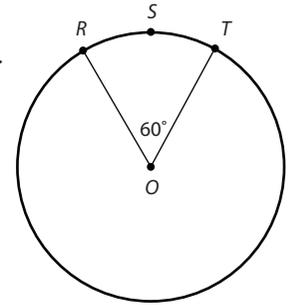
- (A) 2
- (B) 8
- (C) 10
- (D) 15
- (E) 18

2. If the product of the integers w , x , y and z is 770, and if $1 < w < x < y < z$, what is the value of $w+z$?

- (A) 10
- (B) 13
- (C) 16
- (D) 18
- (E) 21

3. If the circle has center O and circumference 18π , then the perimeter of sector $RSTO$ is

- (A) $3\pi + 9$
- (B) $3\pi + 18$
- (C) $6\pi + 9$
- (D) $6\pi + 18$
- (E) $6\pi + 24$



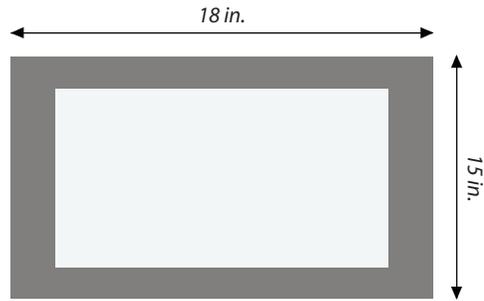
4. If n and u represent single digits in the correctly worked computation above, what is the value of $n+u$?

- (A) 7
- (B) 9
- (C) 10
- (D) 11
- (E) 13

$$\begin{array}{r} 4\ u\ 7 \\ n\ 2\ 3 \\ +\ 1\ 6\ 2 \\ \hline 1\ 2\ 2\ 2 \end{array}$$

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5. The shaded region in the figure represents a rectangular frame with length 18 inches and width 15 inches. The frame encloses a rectangular picture that has the same area as the frame itself. If the length and width of the picture have the same ratio as the length and width of the frame, what is the length of the picture, in inches?



Note: Figure not drawn to scale

- (A) $9\sqrt{2}$
(B) 1,5
(C) $9/\sqrt{2}$
(D) $15(1 - 1/\sqrt{2})$
(E) 4,5
6. At the rate of m meters per s seconds, how many meters does a cyclist travel in x minutes?
- (A) m / sx
(B) mx / s
(C) $60m / sx$
(D) $60ms / x$
(E) $60mx / s$

7. Starting from point O on a flat school playground, a child walks 10 yards due north, then 6 yards due east, and, then 2 yards due south, arriving at point P . How far apart, in yards, are points O and P ?

- (A) 18
(B) 16
(C) 14
(D) 12
(E) 10

8. A club sold an average (arithmetic mean) of 92 raffle tickets per member. Among the female members, the average number sold was 84, and among the male members, the average number sold was 96. What was the ratio of the number of male members to the number of female members in the club?

- (A) 1:1
(B) 1:2
(C) 1:3
(D) 2:1
(E) 3:1

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9. If n is a positive odd integer and $k + 2 = 3n$, which of the following could NOT be a value of k ?

- (A) 1
- (B) 4
- (C) 7
- (D) 25
- (E) 79

10. How many integers n are there such that $1 < 5n + 7 < 25$?

- (A) Five
- (B) Four
- (C) Three
- (D) Two
- (E) One

11. If $a = -0.3$, which of the following is true?

- (A) $a < a^2 < a^3$
- (B) $a < a^3 < a^2$
- (C) $a^2 < a < a^3$
- (D) $a^2 < a^3 < a$
- (E) $a^3 < a < a^2$

12. If the operation \square is defined by $x \square y = \sqrt{xy}$ for all positive numbers x and y , then $(5 \square 45) \square 60 =$

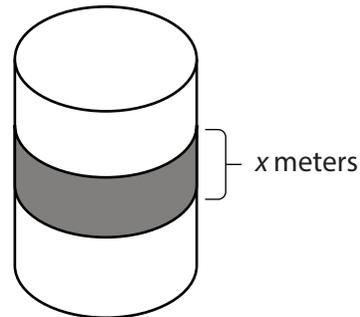
- (A) 30
- (B) 60
- (C) 90
- (D) $30\sqrt{15}$
- (E) $60\sqrt{15}$

Part 2

The task consists of a question and two statements (1) and (2), which contain the necessary data. You have to determine if this data is sufficient to answer the question and to choose one of the following criteria:

- (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) - EACH statement ALONE is sufficient.
- (E) - Statements (1) and (2) TOGETHER are NOT sufficient.

13. A circular tub has a band painted around its circumference, as shown. What is the surface area of this painted band?



- (1) $X = 0,5$
- (2) The height of the tub is 1 meter

14. A certain company currently has how many employees?

- (1) If 3 additional employees are hired by the company and all of the present employees remain, there will be at least 20 employees in the company
- (2) If no additional employees are hired by the company and 3 of the present employees resign, there will be fewer than 15 employees in the company

15. What is the value of the two-digit integer x ?

- (1) The sum of the two digits is 3
- (2) x is divisible by 3

16. What is the value of $b + c$?

- (1) $ab + cd + ac + bd = 6$
- (2) $a + d = 4$

17. The sum of the ages of A, B and C is 137 years. What is C's age

- (1) The sum of the ages of A and C is 91 years
- (2) The sum of the ages of B and C is 104 years

18. In an election how many votes are cast

- (1) The winning candidate gets 54% of the total votes
- (2) The winning candidate wins by 800

19. The table shows the distance, in kilometers, by the most direct route, between any two of the four cities, R, S, T, and U. For example, the distance between City R and City U is 62 kilometers. What is the value of x?

	R	S	T	U
R	0	y	x	62
S	y	0	56	75
T	x	56	0	69
U	62	75	69	0

- (1) By the most direct route, the distance between S and T is twice the distance between S and R
- (2) By the most direct route, the distance between T and U is 1,5 times the distance between R and T

20. Installing scrubbers in smokestacks and switching to cleaner-burning fuel are two methods available to Northern Power for reducing harmful emissions from its plants. Scrubbers will reduce harmful emissions more than cleaner-burning fuels will. Therefore, by installing scrubbers, Northern Power will be doing the most that can be done to reduce harmful emissions from its plants.

Which of the following is an assumption on which the argument depends?

- (A) Switching to cleaner-burning fuel will not be more expensive than installing scrubbers
- (B) Northern Power can choose from among various kinds of scrubbers, some of which are more effective than others
- (C) Northern Power is not necessarily committed to reducing harmful emissions from its plants
- (D) Harmful emissions from Northern Power's plants cannot be reduced more by using both methods together than by the installation of scrubbers alone
- (E) Aside from harmful emissions from the smokestacks of its plants, the activities of Northern Power do not cause significant air pollution

21. Some anthropologists study modern-day societies of foragers in an effort to learn about our ancient ancestors who were also foragers. A flaw in this strategy is that forager societies are extremely varied. Indeed, any forager society with which anthropologists are familiar has had considerable contact with modern, non-forager societies.

Which of the following, if true, would most weaken the criticism made above of the anthropologists' strategy?

- (A) All forager societies throughout history have had a number of important features in common that are absent from other types of societies
- (B) Most ancient forager societies either dissolved or made a transition to another way of life
- (C) All anthropologists study one kind or another of modern-day society
- (D) Many anthropologists who study modern-day forager societies do not draw inferences about ancient societies on the basis of their studies
- (E) Even those modern-day forager societies that have not had significant contact with modern societies are importantly different from ancient forager societies

22. One variety of partially biodegradable plastic beverage container is manufactured from small bits of plastic bound together by a degradable bonding agent such as cornstarch. Since only the bonding agent degrades, leaving the small bits of plastic, no less plastic refuse per container is produced when such containers are discarded than when comparable nonbiodegradable containers are discarded.

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

- (A) Both partially biodegradable and nonbiodegradable plastic beverage containers can be crushed completely flat by refuse compactors
- (B) The partially biodegradable plastic beverage containers are made with more plastic than comparable nonbiodegradable ones in order to compensate for the weakening effect of the bonding agents
- (C) Many consumers are ecology-minded and prefer to buy a product sold in partially biodegradable plastic beverage containers rather than in nonbiodegradable containers, even if the price is higher
- (D) The manufacturer process for partially biodegradable plastic beverage containers results in less plastic waste than the manufacturing process for nonbiodegradable plastic beverage containers

(E) Technological problems with recycling currently prevent the reuse as food or beverage containers of the plastic from either type of plastic beverage container

23. Sales of telephones have increased dramatically over the last year. In order to take advantage of this increase, Mammoth Industries plans to expand production of its own model of telephone, while continuing its already very extensive advertising of this product.

Which of the following, if true, provides most support for the view that Mammoth Industries cannot increase its sales of telephones by adopting the plan outlined above?

- (A) Although it sells all of the telephones that it produces, Mammoth Industries' share of all telephone sales has declined over the last year
- (B) Mammoth Industries' average inventory of telephones awaiting shipment to retailers has declined slightly over the last year
- (C) Advertising has made the brand name of Mammoth Industries' telephones widely known, but few consumers know that Mammoth Industries owns this brand
- (D) Mammoth Industries' telephone is one of three brands of telephone that have together accounted for the bulk of the last year's increase in sales
- (E) Despite a slight decline in the retail price, sales of Mammoth Industries' telephones have fallen in the last year

24. The more frequently employees take time to exercise during working hours each week, the fewer sick days they take. Even employees who exercise only once a week during working hours take less sick time than those who do not exercise. Therefore, if companies started fitness programs, the absentee rate in those companies would decrease significantly.

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

- (A) Employees who exercise during working hours occasionally fall asleep for short periods of time after they exercise
- (B) Employees who are frequently absent are the least likely to cooperate with or to join a corporate fitness program
- (C) Employees who exercise only once a week in their company's fitness program usually also exercise after work
- (D) Employees who exercise in their company's fitness program use their working time no more productively than those who do not exercise
- (E) Employees who exercise during working hours take slightly longer lunch breaks than employees who do not exercise

25. Manufacturers sometimes discount the price of a product to retailers for a promotion period when the product is advertised to consumers. Such promotion often results in a dramatic increase in amount of product sold by the manufacturers to retailers. Nevertheless, the manufacturers could often make more profit by not holding the promotions.

Which of the following, if true, most strongly supports the claim above about the manufacturers' profit?

- (A) The amount of discount generally offered by manufacturers to retailers is carefully calculated to represent the minimum needed to draw consumers' attention to the product
- (B) For many consumer products the period of advertising discounted prices to consumers is about a week, not sufficiently long for consumers to become used to the sale price
- (C) For products that are not newly introduced, the purpose of such promotions is to keep the products in the minds of consumers and to attract consumers who are currently using competing products
- (D) During such a promotion retailers tend to accumulate in their warehouses inventory bought at discount; they then sell much of it later at their regular price
- (E) If a manufacturer fails to offer such promotions but its competitor offers them, that competitor will tend to attract consumers away from the manufacturer's product