

# SAT grid response practice test 1

G001

1. 145 300 610 1230

In the above sequence every term after the first is formed by multiplying by  $x$  and then adding  $y$ , where  $x$  and  $y$  are positive integers. What is the value of  $x + y$ ?

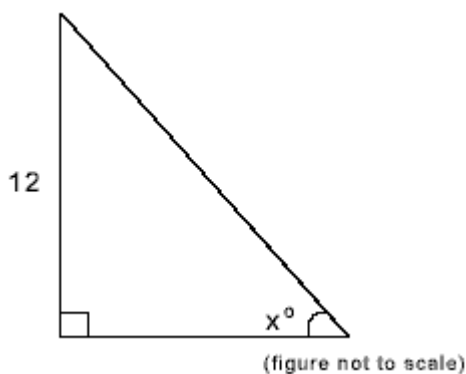
2. A confectioner has 500 mints, 500 orange and 500 strawberry flavored sweets. He wishes to make packets containing 10 mints, 5 orange and 5 strawberry sweets. What is the maximum number of packets of this type he can make?

3. If  $S$  is the sum of 8,6,4,2 and  $x$ , what must be the value of  $x$  for  $x$  to equal  $1/5 S$ ?

4. 25 per cent of 600 is equal to 15 per cent of what number?

5. What is the maximum number of points of intersection of four distinct lines in a plane?

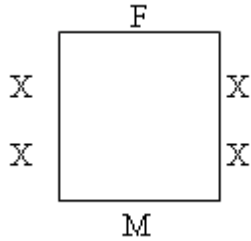
6. If one edge of a 6-inch ruler is to be marked in  $1/10$  inch units, how many marks will there be on the edge including the 0 and 6 inch marks?



7. If the area of the right triangle above is 72, what is the value of  $x$ ?

8. Given that the sum of the odd integers from 1 to 99 inclusive is 2500, what is the sum of the even integers from 2 to 100 inclusive?

9. In a certain game of 50 questions, the final score is calculated by subtracting twice the number of wrong answers from the total number of correct answers. If a player attempted all questions and received a final score of 35, how many wrong answers did he give?

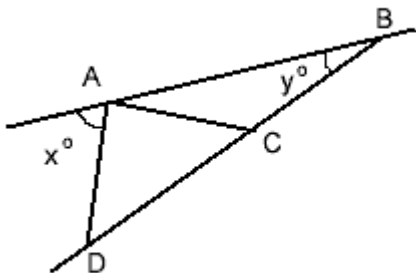


10. Family 1 comprising mother, father and son are to be seated at a table with family 2 comprising mother, father and daughter. The layout of the table is shown in the diagram. F represents one of the fathers and M represents one of the mothers. X represents any family member but with the condition that a male family member must sit opposite a female of the other family. How many different seating plans are possible?

## SAT grid response practice test 2

G002

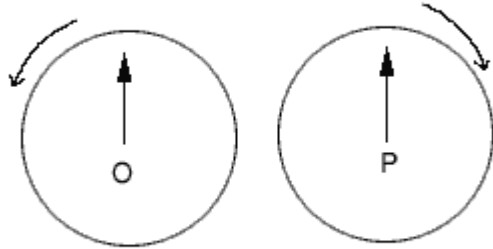
1. What is the sum of all the positive integer factors of 12 ?
2. The average IQ of 4 people is 110. If three people each have an IQ of 105, what is the IQ of the fourth person?
3. Of 60 students in a class  $\frac{2}{3}$  are girls, and  $\frac{2}{5}$  of the class are taking music lessons. What is the maximum number of girls that are not taking music lessons?
4. If  $2^{n+1} = 8$ , what is the value of  $n$  ?



(figure not to scale)

5. In the figure above,  $AD = AC = CB$ .  
If the value of  $y$  is 28, what is the value of  $x$ ?

6. One gallon of fuel mixture contains antifreeze in the ratio of 5 parts fuel to one part antifreeze. To this is added half a gallon of mixture which is one third antifreeze and two thirds fuel. What is the ratio of fuel to antifreeze in the final mixture? (Grid your answer as a fraction: fuel/antifreeze)



7. Two dials O and P have pointers that start from the vertical position as shown. Pointer O rotates anticlockwise at a rate of 5 degrees per second and pointer P rotates clockwise at 9 degrees per second. How many complete revolutions will P have made when O completes 335 complete revolutions?

8. What is the total surface area of 2 identical cubes which together have a volume of 1458 units?

9.  $N = \{12, 18, 2, 6\}$

$P = \{1, 4, 2, 3\}$

If  $n$  and  $p$  are to be selected at random from sets  $N$  and  $P$  respectively, what is the probability that  $n/2p$  will be a member of set  $P$ ?

10. If  $f(x) = (12 - x)^{3/2}$ , and  $n = f(3)$ , what is the value of  $2n$ ?

## SAT grid response practice test 3

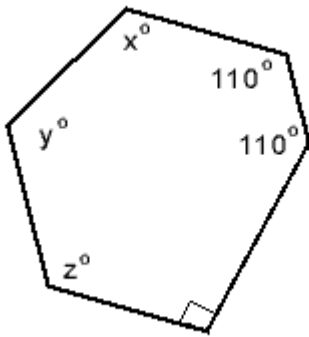
G003

1. In a sequence of numbers the first number is 3 and each number after the first is 2 more than 3 times the preceding number. What is the fourth term in the sequence?

2. If the average of 3 and  $x$  is 5, and the average of 5 and  $y$  is 7, what is the average of  $x$  and  $y$ ?

3. A right circular cylinder has an volume of  $81\pi$ . If the circumference of the base is  $6\pi$ , what is the height?

- Using the digits 1,2,5,9 exactly once in each number, what is the difference between the largest and the smallest number that can be formed?
- How many numbers between 1 and 100 contain the digit 8?
- If  $k$  is a positive integer, what is the smallest value for  $k$  to make  $60k$  a perfect square?



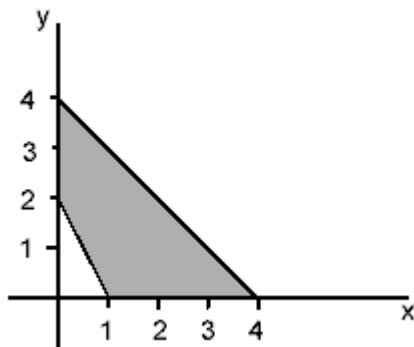
- What is the sum of  $x$ ,  $y$  and  $z$  in the figure above?
- The school library has 50 action adventure novels, 15 romances and 10 historical novels. Julie wants to take one of each type for her sick cousin to read. How many different choices of three books are available to her?
- The fraction  $x/y$  is altered by decreasing  $x$  by 25 per cent and increasing  $y$  by 25 percent. The new fraction is what percent less than the original?
- A CD player chooses a track at random from three discs each with 20 racks. What is the probability that it chooses track 2 of disc 2?

## SAT grid response practice test 4

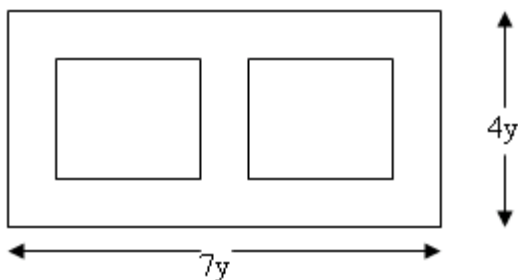
G004

- A typist can type 45 words per minute. He increases his speed by 20 per cent. How many words can he now type per **hour** ?
- If  $2y - x = 8$  , and  $3x - y = 1$ , what is the value of  $x$  ?
- The sum of four consecutive integers is 410. What is the value of the least of these integers?

4. On a map showing only four countries, A, B, C and D, A shares a border with B and C. Country D shares a border with B and C. But countries B and C and countries A and D do not share borders. If the map requires different colours for countries with common borders, what is the minimum number of colours required to complete the map?
5. A square has sides  $s$  and diagonal  $d$ . If  $2s^2 + d^2 = 100$ , what is the value of  $s$ ?
6. Different four-letter passwords can be constructed using the letters A, B, C and D only once. How many such passwords exist if either C or B must be in second position?
7. A book distributor sends out standardized packages weighing 1, 1.5 or 2 kilograms. If during one week 40 per cent of the packages weigh 1 kg, 50 per cent weigh 1.5 kg and 10 per cent weigh 2 kg, what is the average weight in kilograms of the parcels that week?
8. If two lines intersect at a point to form four angles, and one angle is twice as large as its adjacent (neighboring) angle, what is the degree measure of the smallest angle?



9. What is the area of the shaded region?

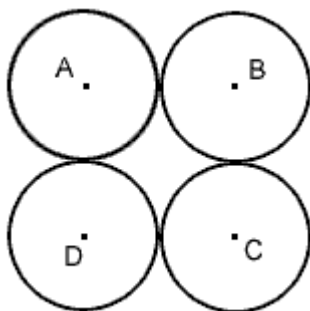


10. Two square flowerbeds are placed symmetrically in a rectangular garden as shown in the diagram. The distance between the beds is  $y$  and so is the width of the border around the beds on all sides. A seed blown into the garden by the wind is equally likely to land anywhere in the garden. What is the probability that it actually lands in a flowerbed?

# SAT grid response practice test 5

G005

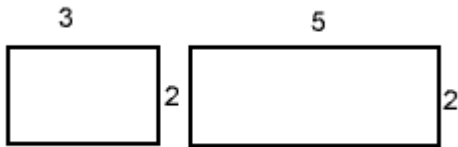
1. On a number line point A has coordinate -4 and point B has coordinate 6. What is the coordinate of point C which is midway between A and B ?
2. 60 per cent of what number is equal to 45 per cent of 80?
3. If the sum of 7 consecutive numbers is 0, what is the greatest of these numbers?
4. How many cubes with volume 8 cubic units can be cut from a cube with a surface area of 96 square units?
5. If  $ab = 1$ ,  $bc = 2$  and  $ac = 8$ , what is the value of  $abc$ ?



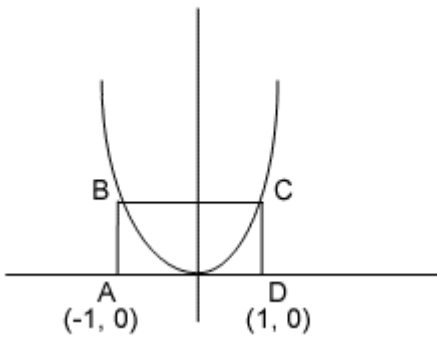
6. Four circles of diameter  $\sqrt{2}$  are placed tangent to each other as shown. What is the distance AC ?
7. What is the least positive integer  $k$  for which  $15k$  is the cube of a number?
8. A factory was owned by three people X, Y and Z, each having an equal share. X sold half his share to Y. Z sold one quarter of his share to Y. What fraction did Y then own?
9. Two people set off by car on a rally and take the same route which is 25 miles long. If A drives at an average speed of 50 miles per hour, and B at an average speed of 60 miles per hour, how much longer in minutes will it take A to cover the course than it takes B ?
10. If  $f(x) = 3x - 2$  and  $g(x) = 2x + 1$ . And if  $f(k) = g(k)$ . What is the value of  $k$ ?

# SAT grid response practice test 6

1. A teacher wants to make a test containing 20 verbal and 30 math questions. Each verbal question is to be allotted 45 seconds to complete and each math question is to be given 1 minute 20 seconds. How many minutes should she allow for the whole test?
2. On a map 1 centimeter represents 100,000 centimeters. What is the length of a road in kilometers that measures 2.9 centimeters on the map?
3. A right triangle has perimeter 12 and sides  $x$ ,  $(x + 1)$  and  $(x + 2)$ . What is the area of the triangle?
4. A palindrome is a number which reads the same backwards as forwards (for example 101). What is the next greatest palindrome after 3443 ?
5. Chen donates 15 percent of his current salary to charity. If his pay is increased by 10 percent and he still continues to donate 15 percent of the salary, by what percentage do his charity contributions increase?
6. Joey starts reading at the top of page 103 and stops at the bottom of page 204. How many pages has he read?



7. A rectangular box is made by putting together pieces of the dimensions shown above. What is the volume of the resulting box?
8.  $x^2 - y^2 = 9$ , and  $x - y = 1$ . What is the value of  $x + y$  ?
9. Sam's test scores are History 76, Geography 74, Math 92, English 81 and Chemistry 80. If the average (arithmetic mean) score is  $M$ , and the median score is  $m$ , what is the value of  $M - m$  ?



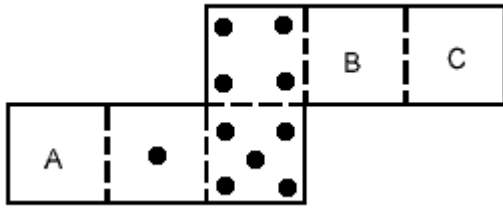
10. ABCD is a rectangle. Points B and C lie on the graph of  $y = wx^2$ , where  $w$  is a constant. If the perimeter of ABCD is 10, what is the value of  $w$ ?

## SAT grid response practice test 7

G007

1. In a test a student got a mark of 49. His report card showed that he had scored 70 per cent. What was the maximum mark on the test?
2. What is the largest odd number that is a factor of 860 ?
3. A school charity sale raised \$4800. One quarter of this was taken to cover expenses. Three quarters of the remainder was given to Charity A and the remainder to Charity B. How much did B receive? (Ignore the dollar sign when entering your answer).
4. A drycleaner charges \$2 for up to 3 pounds in weight of clothes, and 30 cents per pound or part thereof up to a maximum weight of 10 pounds per load. What is the cost in dollars of cleaning six and a half pounds of clothes?
5. If  $x > 0$ , and  $x^2 - 6x - 7 = 0$ , what is the value of  $x$  ?
6. The diameter of circle A is one quarter the diameter of circle B. The area of circle B is how many times greater than the area of circle A ?
7. Three apples and five oranges cost 85cents, and five apples and three oranges cost 83 cents. How much will it cost to buy one apple and one orange?
8. A bag contains 2 red, 5 blue and 8 white beads. If one bead is drawn from the bag what is the probability that it is red or white?



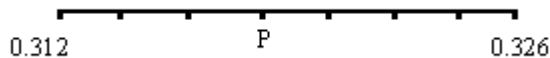


9. The shape above is to be cut out and folded along the dotted lines to form a cubic die. Dots are to be added to faces A, B and C so that the numbers of dots on opposite faces add up to 7. How many dots should appear on face A ?

10. The median of a set of 10 consecutive integers is 3.5. What is the greatest of these 10 integers?

## SAT grid response practice test 8

G008



1. The diagram shows part of a number line with evenly spaced intervals between marks. What is the value of P ?

2. The average of a set of 10 numbers is 15. If one number is removed the average of the remaining numbers is 16. What is the value of the number removed?

3. A car traveling at an average rate of 54 kilometers per hour made a trip in 5 hours. If it had traveled at an average speed of 60 kilometers per hour, how many minutes less would the trip have taken?

$$\frac{3}{x+1} + \frac{x+1}{3} = \frac{3}{8} + \frac{8}{3}$$

4. If x is an integer what is the value of x?

5. The members of a class are standing in a line. Ravi is 32nd in line counting from one end and 12th in line counting from the other. How many students are in the class?

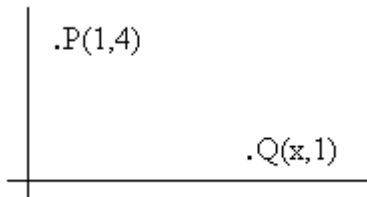
6. Participation in team sports in a certain college was up 25 percent at the end of last year, but participation in individual sports like tennis was down 25 percent. The ratio of students participating in team sports to students taking part in individual sports was how many times greater at the end of the year than the ratio at the beginning of the year?
7. If  $x \spadesuit y = (x + y)^2$  for all positive integers, what is the value of  $(1 \spadesuit 2) \spadesuit 3$  ?
8. Three cubes of side 6 are glued together to make a rectangular box. The surface area of the rectangular box is how much less than the total surface area of the three separate cubes?
9. If the population of bacteria in a culture flask doubles every 20 minutes, the population after 3 hours 20 minutes will be how many times the population at the start?
10. In the x-y plane the distance between the point A (1,1) and B (5,x) is 5. What is one possible value of x?

## SAT grid response practice test 9

G009

$$\frac{1}{1/3} + \frac{2}{2/6} + \frac{3}{3/7} =$$

1.



2. The slope of the line passing through P and Q is  $-3/5$ . What is the value of x?
3. A tree of height 50 feet casts a shadow 80 feet long at a certain time of day. A second tree near to the first casts a shadow 100 feet long at the same time. How many feet taller is the second tree than the first?
4. If  $p^2 - q^2 = 12$ , and  $p + q = 4$   
What is the value of p ?

5.  $x + y = 15$ ,  $y + z = 25$ , and  $x + z = 20$

What is the average (arithmetic mean) of  $x, y$  and  $z$  ?

6. A field covers 149.8 square yards. A farmer harvests the crop from the field in three days. The first day he covers  $\frac{2}{7}$  of the area. The next day he covers twice as much. How many square yards does he cover on the last day?

7. A faulty odometer (mileage indicator) on a car registers 6 miles for every 5 miles actually travelled. At the start of a journey it reads 500 miles and at the end of the journey it reads 560 miles. What distance has actually been covered?

<u>No. of students</u>	<u>Marks</u>
10	80
5	75
5	70
2	60
2	55
1	20

8. This question and the next refer to the above table showing the distribution of marks obtained in a Math test by a certain class

What is the difference between the mode and the median of the set of scores shown in the table above?

9. Refer to the table from the previous question

Tina's score was accidentally omitted from the list. When her score is added, the average (arithmetic mean) score for the class does not change. What is Tina's score?

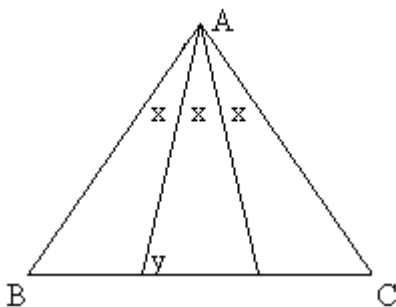
Leaf Number (n)	Difference (d) between SA and mean SA
1	+0.1
2	0
3	-0.2
4	-0.3
5	+0.1
6	+0.4
7	0
8	-0.3

10. The surface area (SA) of a series of leaves was measured in a particular experiment. For each value of SA, the value  $d$  was calculated, where  $d$  is the difference between the value and the mean SA. The results were expressed in tabulated form as shown above. If  $S$  represents the sum of all the values of  $|d|$ , what is the value of  $S$ ?

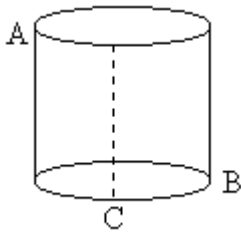
## SAT grid response practice test 10

G010

1. A time lapse camera takes pictures once every 40 seconds. How many pictures does it take in a 24 hour period? (Assume that it takes its first picture 40 seconds after the start of the time period.)



2. Triangle ABC is equilateral. What is the degree measure of angle y ? (Ignore the degree sign when gridding your answer)
3. If a sack of dried dog food feeds 4 dogs or 5 puppies for one week, then 5 sacks of the food will feed 15 puppies and how many dogs ?
4. The sum of three numbers is 6. Each number is increased by 20 and the new numbers are multiplied by 10. What is the sum of the resulting numbers?
5. What is the largest odd-numbered factor of 4500 ?



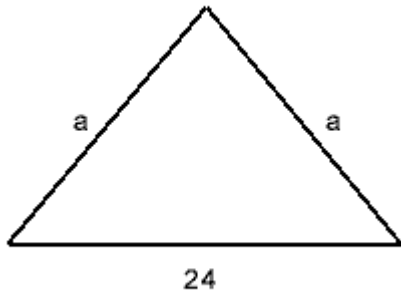
6. Points A and B are on the top and bottom edges of a cylindrical roll of paper of height 8 and circumference 12. A and B are diagonally opposite each other. The paper is cut along line C and opened out. How far apart are A and B on the flat surface?
7. 2 cars travel from the same point along parallel lanes of a highway for a distance of 10 miles. When car M, travelling at 60 miles an hour reaches the end of the distance, how much further will car N have to travel if it is travelling at 48 miles an hour?
8. ♣ ♥ ¥ ♠ □  
How many different **3-symbol** arrangements of the symbols above are possible if the symbol □ must be in the last position, and the symbol ♣ can be used in only one arrangement. The other symbols can be used more than once in an arrangement.

If  $\frac{2+3}{x} = \frac{2+x}{3}$

9. What one value for x can be correctly entered into the answer grid?
10. What positive value for k would make the following the equations of a pair of parallel lines on the same coordinate axes?

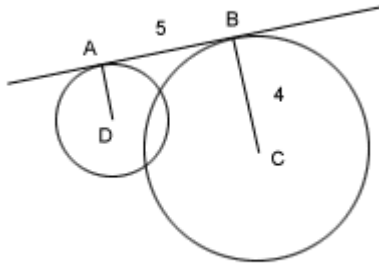
## SAT grid response practice test 11

1. The area of a rectangle with sides  $x$  and  $3x$ , is how many times greater than the area of a right angled isosceles triangle with side  $x$ ?
2. If \$81 is to be divided among  $n$  people, where  $n > 1$ , so that each gets \$ $x$ , where  $x$  is a whole number  $> 1$ , how many different values could there be for  $n$ ?



(figure not to scale)

3. If the area of the triangle shown above is 108 square centimeters, what is its perimeter in centimeters?
4. A charity organisation sells greetings cards in packs costing \$10 or \$2.50 each. A total of 75 packs were sold at a fair for a total of \$375. How many of the \$2.50 packs were sold?
5. The length of a rectangle is  $\frac{2}{7}$  of the perimeter. What is the value of the diagonal of the rectangle if the perimeter is 14 units?
6.  $A = \{A, B, C, D, E, F, G\}$   
 $B = \{0, 1, 2\}$   
 $C = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$   
The filing system in an office requires each file to have an alphanumeric code name of the form  $abc$ .  $A$ ,  $B$  and  $C$  are the sets from which  $a, b$ , and  $c$  must be chosen. How many possible code names are there?
7. A measuring cylinder is filled one third full with ethanol. A mixture of ethanol, water and propanol is used to fill the measuring flask to capacity. What fraction of the final mixture is ethanol?
8. The equation  $y = 6$  is graphed on the same coordinate axes as the circle with center  $(4,4)$  and radius 3.  
One of the points of intersection of the line and the circle has  $x$ -coordinate 1.76. What is the  $x$  coordinate of the other point of intersection?
9. If  $a$  and  $b$  are positive integers, and  $(ab^{3/2})^2 = 108$ , what is the value of  $ab$ ?



10. The line through AB is tangent to two circles with centers D and C and whose areas are in the ratio 4: 1

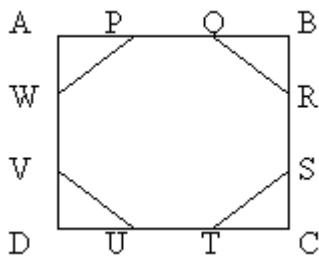
If  $AB = 5$  and  $BC = 4$ , what is the length of line segment DC (not shown)? Grid your answer correct to three significant figures.

## SAT grid response practice test 12

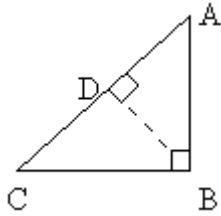
G012

1. The sides of a rectangular piece of card are each 10 per cent too long for a particular project. By what percentage is the area too large?

2. Andy, Mark and Sean all have their birthdays today, but Andy is more than twice as old as Mark and Mark is more than four years older than Sean. If Andy is less than 16 years old, what is one possible value for Mark's age in years ?



3. ABCD is a square. Also  $AP=PQ=QB=BR=RS=SC=CT=TU=UD=DV=VW=WA$ . The area of the octagon PQRSTUVW is what fraction of the square?



4. Triangle ABC is a right angled triangle. Also  $AC = 5$ ,  $CB = 3$  and angle ADB is a right angle. What is the length of DB?
5. A football team has won 10 games and lost 5 games. If the team wins the remaining games of the season, it will have won 80 percent of its games. How many games in total will have been played?
6. Let the function  $f$  be defined by  $f(x) = x - 1$   
What is the value of  $y$  if  $y$  is a positive integer such that  $\frac{1}{3} f(y^2) = 5$ ?
7. The amount of time taken to paint a wall is inversely proportional to the number of painters working on the job. If it takes 3 painters 5 days to complete such a job, how many days longer will it take if there are only 2 painters working?
8. Line  $l$  and line  $m$  lie in the same plane but have no points in common. They are both tangent to a circle of area  $9\pi$ . What is the shortest distance between any point on  $l$  and any point on  $m$ ?
9. A box contains 5 chocolates with soft centers, 6 with nut centers, and 11 with hard caramel centers. Three students take turns to take a chocolate at random from the box and eat it. If the probability that all three students take soft centers is  $\frac{1}{x}$ , what is the value of  $x$ ?
10. At one point in a game the shooting team has a ratio of hits to misses of 5:1. After the team misses the next three shots, which are the last in the game, its ratio of hits to misses is 5:2. What is the total number of shots taken by the team in the game?

## Practice Test 1

**Question    Correct Answer**

1.            12
2.            50
3.            5



- |     |      |
|-----|------|
| 4.  | 1000 |
| 5.  | 6    |
| 6.  | 61   |
| 7.  | 45   |
| 8.  | 2550 |
| 9.  | 5    |
| 10. | 16   |

## Practice Test 2

**Question    Correct Answer**

- |     |       |
|-----|-------|
| 1.  | 28    |
| 2.  | 125   |
| 3.  | 36    |
| 4.  | 2     |
| 5.  | 84    |
| 6.  | $7/2$ |
| 7.  | 603   |
| 8.  | 972   |
| 9.  | $3/8$ |
| 10. | 54    |

## Practice Test 3

**Question    Correct Answer**

1. 107
2. 8
3. 9
4. 8262
5. 19
6. 15
7. 410
8. 7500
9. 40
10.  $1/60$

## Practice Test 4

### Question Correct Answer

1. 3240
2. 2
3. 101
4. 2
5. 5
6. 12
7. 1.35
8. 60

9. 7  
10.  $\frac{2}{7}$

## Practice Test 5

Question	Correct Answer
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- |     |                |
|-----|----------------|
| 1.  | 1              |
| 2.  | 60             |
| 3.  | 3              |
| 4.  | 8              |
| 5.  | 4              |
| 6.  | 2              |
| 7.  | 225            |
| 8.  | $\frac{7}{12}$ |
| 9.  | 5              |
| 10. | 3              |

## Practice Test 6

Question	Correct Answer
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- |    |     |
|----|-----|
| 1. | 55  |
| 2. | 2.9 |
| 3. | 6   |

- |     |      |
|-----|------|
| 4.  | 3553 |
| 5.  | 10   |
| 6.  | 102  |
| 7.  | 30   |
| 8.  | 9    |
| 9.  | 0.6  |
| 10. | 3    |

## Practice Test 7

**Question    Correct Answer**

- |     |               |
|-----|---------------|
| 1.  | 70            |
| 2.  | 215           |
| 3.  | 900           |
| 4.  | 3.20          |
| 5.  | 7             |
| 6.  | 16            |
| 7.  | 21            |
| 8.  | $\frac{2}{3}$ |
| 9.  | 2             |
| 10. | 8             |

## Practice Test 8

**Question    Correct Answer**

1. .318
2. 6
3. 30
4. 7
5. 43
6.  $\frac{5}{3}$
7. 144
8. 144
9. 1024
10. 4

## Practice Test 9

### Question Correct Answer

1. 16
2. 6
3. 12.5
4. 3.5
5. 10
6. 21.4
7. 50
8. 5
9. 71

10. 1.4

## Practice Test 10

**Question**   **Correct Answer**

1. 2160

2. 80

3. 8

4. 660

5. 1125

6. 10

7. 2

8. 10

9. 3

10. 3

## Practice Test 11

**Question**   **Correct Answer**

1. 6

2. 3

3. 54

4. 50

- 5. 5
- 6. 189
- 7.  $5/9$
- 8. 6.24
- 9. 6
- 10. 5.39

## Practice Test 12

### Question Correct Answer

- 1. 21
- 2. 6
- 3.  $7/9$
- 4. 2.4
- 5. 25
- 6. 4
- 7. 2.5
- 8. 6
- 9. 154
- 10. 21