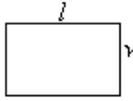


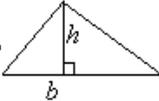
<p align="center">25 Questions Time —30 Minutes</p>	<p>Using any available space on this paper for scratch work, solve each problem. Then select the best answer from the choices given, and darken the corresponding bubble on your answer sheet.</p>
<p><u>Note:</u></p> <ul style="list-style-type: none"> All numbers are real numbers. Calculators are permitted. Unless specified otherwise, all figures lie in a plane and are not drawn to scale. 	



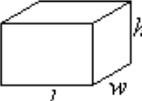
$A = \pi r^2$
 $C = 2\pi r$



$A = lw$



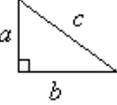
$A = \frac{1}{2}bh$



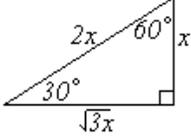
$V = lwh$



$V = \pi r^2 h$



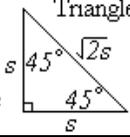
$c^2 = a^2 + b^2$

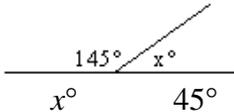
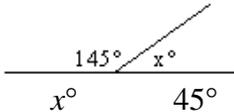
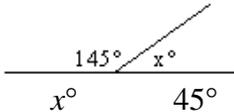


Special Right Triangles

Reference Information

360° = total degrees of arc in a circle
 180° = total degrees in a straight angle
 180° = sum of degrees in the angles of a triangle



<p>The first 15 questions provide a quantity in column A and a quantity in column B. Compare the values and darken the corresponding bubble on your answer sheet.</p> <p>A if Column A is the larger quantity. B if Column B is the larger quantity. C if Column A and Column B are equal quantities. D if there is not enough information to determine if either quantity is greater.</p> <p>DO NOT SELECT "E."</p> <p><u>Note:</u></p> <p>Additional information about the two quantities may appear at the beginning of a question.</p> <p>Identical symbols in each column represent the same thing in both columns.</p> <p>Letters such as a, b, x, etc. represent real numbers.</p>	<p>EXAMPLES</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; border-bottom: 1px solid black;"><u>Column A</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>Column B</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>Answers</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2^5</td> <td style="text-align: center;">5^2</td> <td style="text-align: center;"> <input checked="" type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input type="radio"/> (D) <input type="radio"/> (E) </td> </tr> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">45°</td> <td style="text-align: center;"> <input type="radio"/> (A) <input type="radio"/> (B) <input checked="" type="radio"/> (C) <input type="radio"/> (D) <input type="radio"/> (E) </td> </tr> <tr> <td style="text-align: center;">r and s are integers</td> <td style="text-align: center;">$r - s$ $s - r$</td> <td style="text-align: center;"> <input type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input checked="" type="radio"/> (D) <input type="radio"/> (E) </td> </tr> </tbody> </table>	<u>Column A</u>	<u>Column B</u>	<u>Answers</u>	2^5	5^2	<input checked="" type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input type="radio"/> (D) <input type="radio"/> (E)		45°	<input type="radio"/> (A) <input type="radio"/> (B) <input checked="" type="radio"/> (C) <input type="radio"/> (D) <input type="radio"/> (E)	r and s are integers	$r - s$ $s - r$	<input type="radio"/> (A) <input type="radio"/> (B) <input type="radio"/> (C) <input checked="" type="radio"/> (D) <input type="radio"/> (E)	
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5

Column A

5

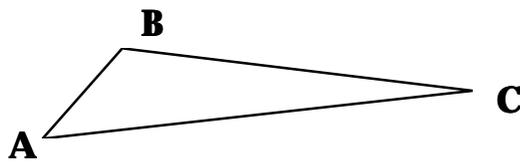
Column B

1.

$1 - 1/12$

$1 - 1/13$

2.



Note: Figure may not be drawn to scale.

$AB + BC$

AC

3.

$(x - 3)^2$

x^2

5

Column A

5

Column B

4.

The cost of 10 quarts of juice at \$2.00 a quart

The cost of 5 liters of cola at \$4.00 a liter

5.

$\sqrt{x^2 y^2}$

xy

6. Let $x > 1$

$(x-4)(x-6)$

$(x-8)(x-3)$

7. $r + 23,885 = 100,000$
 $s + 24,221 = 100,000$

r

s

Column AColumn B

8.

Volume of cylinder with base area 4 and height 10.

Volume of cylinder with base area 5 and height 8.

9. Let $b = 1/2$.

$$b^2 + b^3 + b^4$$

b

10. It is 100 miles from the center of town A to the center of town B and 100 miles from the center of town B to the center of town C.

Distance from the center of town A to the center of town C

100 miles

11.

Let $\triangle B = 4B + B \times B$

Let $x > 1$ and let $y < 1$.

$$\triangle x$$

$$\triangle y$$
Column AColumn B

12. A pair of fair, six-sided dice are rolled.

Probability of getting a 7

Probability of getting doubles

13. Given the following set of data:

1, 1, 1, 1, 2, 3, 3, 4, 6, 8

The median added to the mode

The average (arithmetic mean)

14.

The area of a square with side 3 inches

The area of an equilateral triangle with side 3 inches.

15. Let x be an integer greater than zero and not equal to 2.
$$1/(2-x)$$

$$1/(2-x^2)$$

Student produced responses: for questions 16-25, calculate the answer and fill in your results in the special bubble grids as follows:

Answer: 4.666...

Optional: Write answer in boxes

○	7	7	○
○	●	○	○
○	0	0	0
○	1	1	1
○	2	2	2
○	3	3	3
○	4	4	4
○	5	5	5
○	6	6	●
○	7	7	7
○	8	8	8
○	9	9	9

decimal point

Required: Grid in answer

1	4	/	3
○	7	●	○
○	○	○	○
○	0	0	0
○	1	1	1
○	2	2	2
○	3	3	3
○	4	4	4
○	5	5	5
○	6	6	6
○	7	7	7
○	8	8	8
○	9	9	9

fraction slash

4	.	6	7
○	7	7	○
○	○	○	○
○	0	0	0
○	1	1	1
○	2	2	2
○	3	3	3
○	4	4	4
○	5	5	5
○	6	6	6
○	7	7	7
○	8	8	8
○	9	9	9

- You may write your answer in the top of the grid to assist you in bubbling the proper characters, but you will only be scored for what you bubble in. *You must bubble in the numbers to receive credit for your answer.*
- Be sure to bubble only one character in each column.
- You may start your answer in any column, providing it leaves you enough space to grid the entire answer. Leave unneeded columns blank.
- For decimal answers, enter as many significant digits as you have columns. For example if your answer is 0.666666..., acceptable forms for your response are .666 or .667, but not 0.67.
- If the answer is a mixed number, grid it as a decimal or as an improper fraction. (In this four-column grid, one and one-half would be indistinguishable from eleven-halves, so you should grid it as 3/2 or as 1.5.)
- If there is more than one correct answer, you only need to grid one answer to receive full credit.
- There are no negative answers.



16. If the measure of angle y is 20° , find the value of x . Do not grid the degree sign.

17. A certain medication requires $\frac{1}{8}$ of an ounce for every 20 pounds of body weight. How much medication should be given to a person who weighs 140 pounds?

5

5

18. If $(2)(2)(3)(3)(x) = 72$ and $(2)(2)(7)y = 84$, then $(x)(y) =$
-

19. The ratio of men to women in a group was 3 to 1. After 20 more men arrive the ratio of men to women is now 8 to 1. How many women are in the group?
-

20. If 6 is added to $(3/8)$ of a number the result is half of the number. What is the number?
-

21. Given $xy = 144$. If x and y are integers and if $3 < x < y$, what is the greatest possible value of y ?

5

5

22. How many numbers less than 100 are the product of two positive consecutive even integers?
-

23. If $x^2 - y^2 = 40$ and $x - y = 20$, then $x + y = ?$
-

24. If the average of p and q is 6 and the difference between p and q is 8, then $pq = ?$
-

25. How much less is the area of a rectangle with width 2 and length 10 than the area of a square with the same perimeter?

If you finish before time is up, you may check your work in this section only. Do not look at any other section.

STOP