# Mathematics

**DIRECTIONS:** Read each question and choose the best answer.

**1.** Which set contains only irrational numbers?

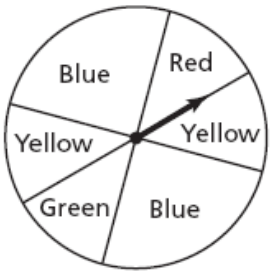
**A** $\{-8, \ -\sqrt{4}, \ \sqrt{3}, \ \sqrt{16}\}$

**B** $\{-\sqrt{64}, \ \sqrt{0}, \ \sqrt{19}, \ \sqrt{13}\}$

**C** $\{-\sqrt{26}, \ -\sqrt{16}, \ \sqrt{2}, \ \sqrt{8}\}$

**D** $\{-\sqrt{50}, \ -\sqrt{13}, \ \sqrt{10}, \ \sqrt{54}\}$

**2.** The spinner shown below is divided into sections so that the area of each blue section is $\frac{1}{4}$ the area of the spinner. The area of each of the remaining sections is $\frac{1}{8}$ the area of the spinner.




What is the probability of spinning the arrow once and getting an outcome of blue?

**A** $\frac{1}{8}$

**B** $\frac{1}{4}$

**C** $\frac{1}{3}$

**D** $\frac{1}{2}$

Go On

**3.** Brianna is planting flowers in her garden. Each row of flowers repeats in the sequence shown below.

- 2 mums
- 3 zinnias
- 4 snapdragons
- 3 petunias
- 2 daisies

Brianna has planted 38 flowers. Which type of flower will she plant next?

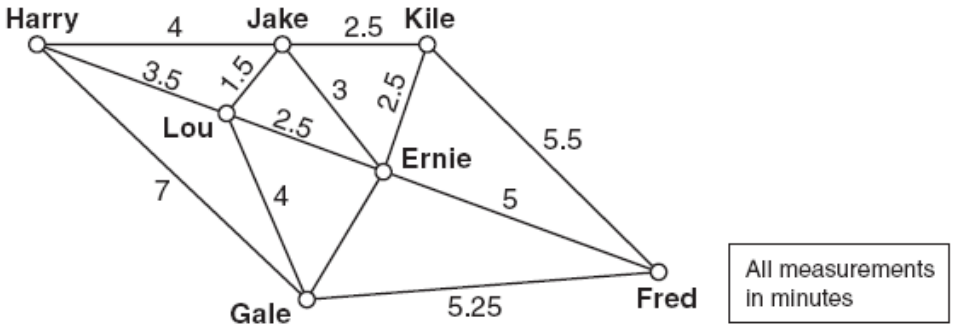
**A** zinnia

**B** snapdragon

**C** petunia

**D** daisy

**4.** Jake designed a map that shows the number of minutes it takes to travel between his and his friends' houses.




**Note:** The figure is not drawn to scale.

Which of these routes takes the **longest** time to get from Jake's house to Fred's house?

**A** Jake's → Kile's → Fred's

**B** Jake's → Ernie's → Fred's

**C** Jake's → Lou's → Ernie's → Fred's

**D** Jake's → Kile's → Ernie's → Fred's

*Go On*

**5.** Four students in a group each chose a number.

Clues
- Dave's number is less than Geoff's number.
- Judy's number is greater than Mario's number.
- Geoff and Mario have the same number.
- Judy's number is greater than Dave's number.

Based on the clues, which could show the number chosen by each group member?

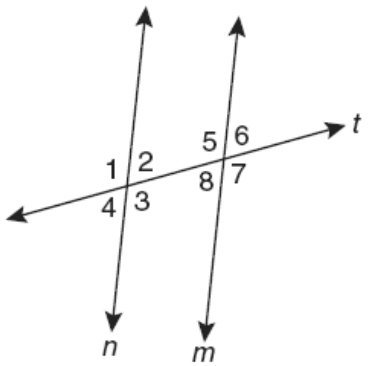
**A** Dave: 1, Geoff: 3, Judy: 7, Mario: 2

**B** Dave: 2, Geoff: 8, Judy: 6, Mario: 8

**C** Dave: 6, Geoff: 7, Judy: 9, Mario: 7

**D** Dave: 10, Geoff: 5, Judy: 9, Mario: 5

**6.** In the diagram below, transversal *t* intersects parallel lines *m* and *n*.




Which of the following angles is **not** congruent to ∠1?

**A** ∠3

**B** ∠5

**C** ∠7

**D** ∠8

Go On

**7.** Kara formed a pattern using the following steps.

- She chose −1 as the first term.
- Each term after the first was two more than the immediately previous term.

What are the first five terms of Kara's sequence?

**A** −1, −2, −4, −8, −10

**B** −1, 0, 2, 4, 6

**C** −1, 1, 3, 5, 7

**D** −1, 0, 3, 5, 7

**8.** Which of the following is the solution to the equation below?

$$2x + 3 = 13$$

**A** $x = 5$

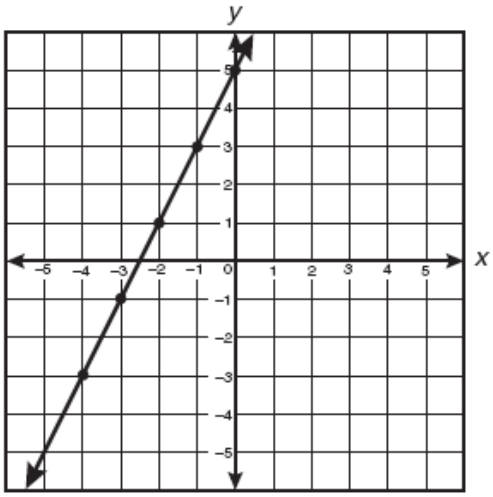
**B** $x = 8$

**C** $x = 20$

**D** $x = 32$

Go On

**9.** Which table contains only coordinates of points that appear to be on the line shown below?




| x | y |
|---|---|
| 0 | 4 |
| 1 | 3 |
| 2 | 1 |

**A**

| x | y |
|---|---|
| 0 | −4 |
| −1 | −3 |
| −2 | −1 |

**C**

| x | y |
|---|---|
| −1 | 3 |
| −3 | −1 |
| −4 | −3 |

**B**

| x | y |
|---|---|
| 3 | −1 |
| −3 | −1 |
| −4 | −3 |

**D**

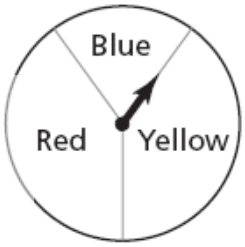
Go On

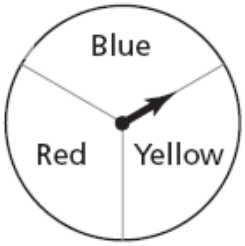
**10.** Six students in Mr. Salazar's math class conducted a probability experiment. Each student was asked to flip a quarter and spin the arrow on a colored spinner.

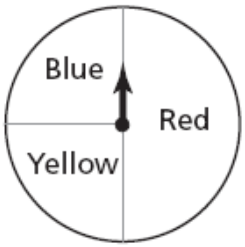
The results of the experiment are shown below.

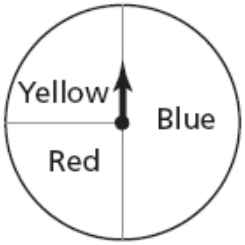
| | | | |
|---|---|---|---|
| John: | Heads/Blue | Sally: | Heads/Blue |
| Mary: | Heads/Red | Zeke: | Tails/Yellow |
| Paul: | Tails/Blue | Jill: | Tails/Blue |

If the experimental results closely match the theoretical probability of the colored spinner, which of these is **most likely** the spinner that was used?

A



B



C



D
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