

1. Which number could be used to express the probability of an event occurring?

Ⓐ $-\frac{3}{4}$

Ⓑ $\frac{1}{4}$

Ⓒ $\frac{7}{4}$

Ⓓ $2\frac{1}{4}$

2. A right rectangular prism is sliced by a plane that passes through both bases and is perpendicular to both bases. What shape results from the slicing?

Ⓐ a triangle

Ⓑ a pentagon

Ⓒ a rectangle

Ⓓ a hexagon

3. For each individual angle measure, select the pair of angle measures with which it could form a triangle.

| | $m\angle 3 = 27^\circ$ | $m\angle 3 = 51^\circ$ | $m\angle 3 = 73^\circ$ |
|---|------------------------|------------------------|------------------------|
| $m\angle 1 = 30^\circ, m\angle 2 = 77^\circ$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $m\angle 1 = 48^\circ, m\angle 2 = 105^\circ$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $m\angle 1 = 55^\circ, m\angle 2 = 74^\circ$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. A sandwich shop has a "Build-Your-Own" sandwich on its menu. For this option, a roll costs \$0.75 and turkey costs \$1.75 a pound. Which inequality shows how much turkey can be ordered on a roll for a sandwich to cost up to \$6.00? X represents the number of pounds of turkey.

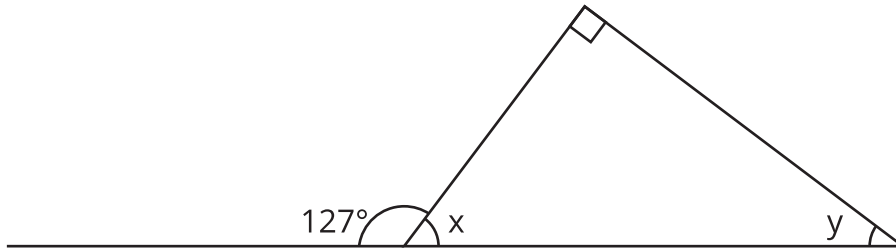
- Ⓐ $x \leq 2.40$ lb
- Ⓑ $x \leq 3.00$ lb
- Ⓒ $x \leq 3.43$ lb
- Ⓓ $x \leq 5.67$ lb

5. A building has 3 identical rectangular parking lots. The sum of the perimeters of the 3 parking lots is 540 feet. If the width of each parking lot is 40 feet, how many feet long is each parking lot?

6. In an apartment building with 60 tenants, 15 people own dogs, 20 own cats, 6 own fish, and 19 have no pets. Based on this data, for each number select the probability it represents.

| | $\frac{1}{3}$ | $\frac{1}{10}$ | $\frac{41}{60}$ |
|-----------------------------|-----------------------|-----------------------|-----------------------|
| probability of owning fish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| probability of owning a cat | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| probability of owning a pet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. A right triangle is shown.



In the triangle, $x =$

- | |
|-----------------------------------|
| <input type="radio"/> 53 degrees |
| <input type="radio"/> 127 degrees |
| <input type="radio"/> 233 degrees |

and $y =$

- | |
|-----------------------------------|
| <input type="radio"/> 37 degrees |
| <input type="radio"/> 53 degrees |
| <input type="radio"/> 127 degrees |
| <input type="radio"/> 143 degrees |

8. A worker wishes to calculate his new salary after a 20% pay raise. If x represents his current pay, the expressions

| | | | |
|----------------------------------|-----|-------------------------------|-------------------------------|
| <input type="radio"/> $1 + 0.2x$ | | <input type="radio"/> $0.2x$ | |
| <input type="radio"/> $1 + 20x$ | | <input type="radio"/> $1.2x$ | |
| <input type="radio"/> $x + 0.2x$ | and | <input type="radio"/> $0.08x$ | can both be used to calculate |
| <input type="radio"/> $x + 20x$ | | <input type="radio"/> $1.8x$ | |

his new rate of pay.

9. Abigail is using her mother's pancake recipe, but she wants to make 60% more pancakes than the recipe usually prepares. If her mother's recipe calls for $\frac{1}{2}$ cup of flour, how much flour will Abigail need to use?

- Ⓐ $\frac{3}{10}$ cup
- Ⓑ $\frac{4}{5}$ cup
- Ⓒ $1\frac{1}{10}$ cup
- Ⓓ $1\frac{3}{5}$ cup

10. For each rational number, select an expression with the same value.

| | $\frac{11}{14}$ | $1\frac{3}{11}$ | $6\frac{1}{4}$ |
|------------------------------------|-----------------------|-----------------------|-----------------------|
| $3\frac{1}{2} + 2\frac{3}{4} =$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $3\frac{1}{2} \div 2\frac{3}{4} =$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $2\frac{3}{4} \div 3\frac{1}{2} =$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. Which expressions are equivalent to $4x - 8x + 12y$? Select all that apply.

- Ⓐ $-4x + 12y$
- Ⓑ $4x + 12y$
- Ⓒ $12x + 12y$
- Ⓓ $-4(x - 3y)$
- Ⓔ $4(x + 3y)$
- Ⓕ $12(x + y)$

12. Evaluate $-4\frac{1}{3} - 2 + 7\frac{5}{6}$.

Ⓐ $3\frac{1}{2}$

Ⓑ $2\frac{1}{3}$

Ⓒ $2\frac{1}{6}$

Ⓓ $1\frac{1}{2}$

13. An orange juice container starts with $6\frac{7}{8}$ cups of juice. How much orange juice is left after three $1\frac{1}{4}$ -cup servings are poured?

Ⓐ $2\frac{5}{8}$ cups

Ⓑ $3\frac{1}{8}$ cups

Ⓒ $3\frac{3}{4}$ cups

Ⓓ $5\frac{5}{8}$ cups

14. Which expression shows that x is decreased by 25%?

Ⓐ $\frac{x}{0.25}$

Ⓑ $\frac{x}{0.75}$

Ⓒ $0.75x$

Ⓓ $x - 0.25$

15. Which number is equivalent to $2\frac{3}{4}$?

Ⓐ 0.30

Ⓑ 0.36

Ⓒ 2.34

Ⓓ 2.75

16. For each rate, select its equivalent rate.

| | $\frac{2}{3}$ miles per hour | $1\frac{1}{2}$ miles per hour | $2\frac{2}{3}$ miles per hour |
|--|------------------------------|-------------------------------|-------------------------------|
| Walking $\frac{3}{4}$ mile in $\frac{1}{2}$ hour | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Walking $\frac{2}{3}$ mile in $\frac{1}{4}$ hour | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Walking $\frac{1}{2}$ mile in $\frac{3}{4}$ hour | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

17. At a farmers' market, 4 apples can be purchased for \$3.00. What is the unit price of an apple at the farmers' market?

- Ⓐ \$0.75
- Ⓑ \$1.33
- Ⓒ \$3.00
- Ⓓ \$12.00

18. The total distance, d , an object travels is proportional to the amount of time, t , spent traveling at a constant speed. If an object's speed is 30 miles per hour, which equation expresses the relationship between total distance traveled and time spent traveling?

Ⓐ $d = 30t$

Ⓑ $dt = 30$

Ⓒ $d = 30 + t$

Ⓓ $t = 30d$

19. A coin is flipped 60 times, resulting in 12 heads and 48 tails. What is the observed probability of the coin landing on heads?

Ⓐ $\frac{1}{5}$

Ⓑ $\frac{1}{4}$

Ⓒ $\frac{1}{2}$

Ⓓ $\frac{4}{5}$

- 20.** A drawer contains a blue shirt, a black shirt, and a white shirt. Another drawer contains a blue pair of pants and a black pair of pants. One shirt and one pair of pants are chosen at random. How many different possible outcomes are there?

outcomes

- 21.** Let x be the number of boys in a class and y be the number of girls. Which equation represents 2 boys for every 5 girls? Select all that apply.

Ⓐ $x = 2y - 5$

Ⓑ $x = 5y - 2$

Ⓒ $5x = 2y$

Ⓓ $x = 2\frac{1}{2}y$

Ⓔ $x = \frac{2}{5}y$

22. The ages of the members of two clubs are given in the table.

| Art Club | Drama Club |
|----------|------------|
| 13 | 15 |
| 14 | 16 |
| 14 | 16 |
| 15 | 16 |
| 17 | 17 |
| 17 | 17 |
| | 18 |
| | 18 |
| | 18 |
| | 19 |

How many years greater is the mean age of the members of the drama club than the mean age of the members of the art club?

years

23. Select the equivalent expressions.

| | | | |
|----------|-----------------------|-----------------------|-----------------------|
| | $3(3x-4y)$ | $3(x-3y)$ | $2(x-3y)$ |
| $3x-9y$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $9x-12y$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| $2x-6y$ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

24. A fair coin is tossed and a single number cube is rolled. The probability

of rolling a number less than 5 is $\frac{1}{3}$ $\frac{2}{3}$ $\frac{5}{6}$. The probability of

flipping heads and rolling an odd number is $\frac{1}{4}$ $\frac{1}{2}$ 1 .

25. Match each area with the appropriate figure.

| | | | |
|----|-----------------------|-----------------------|-----------------------|
| | | | |
| 17 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 20 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 21 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

DIRECTIONS: Use the information provided to answer questions 1–8.

John is working part-time in an office. He works 30 hours per week and earns \$600 each week. He currently has \$2,700 in a savings account.

1. John needs to spend \$3,780 on car repairs. He sets aside \$492 a week for his usual expenses. After these expenses, it will take at least

| |
|--------------------------|
| <input type="radio"/> 8 |
| <input type="radio"/> 35 |

weeks to pay for the repairs. If John uses his savings to

help pay for the repairs, it will take at least

| |
|--------------------------|
| <input type="radio"/> 10 |
| <input type="radio"/> 25 |
| <input type="radio"/> 60 |

weeks to pay for the repairs.

- 2.** After spending all of his savings on car repairs, John decides to set aside 5% of his weekly salary to replenish his savings account. How many weeks will it take to get back to \$2,700?

weeks

- 3.** John's savings account pays 4% simple interest. If the principal is \$2,700, what will the balance be after interest is added?

dollars

- 4.** When John first opened his savings account, he put 6% of his salary into it every week. What was the account balance after 4 weeks?

- Ⓐ \$36
- Ⓑ \$144
- Ⓒ \$400
- Ⓓ \$1,440

5. John is thinking of taking a second job that pays \$12 an hour. How many hours will he need to work each week at the second job to raise his total weekly income to at least \$768?

Ⓐ 12

Ⓑ 14

Ⓒ 44

Ⓓ 64

6. John is developing a budget. Each week, he sets aside money for expenses. For each amount, select the correct category.

| | \$90 | \$180 | \$72 |
|------------------|-----------------------|-----------------------|-----------------------|
| 30% for rent | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12% for parking | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15% for clothing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

- 7.** John has not yet gotten a raise at his first job. He is considering decreasing his hours at this job by 12% each week. If John does this, what would his new weekly pay be?
- Ⓐ \$72
 - Ⓑ \$465
 - Ⓒ \$528
 - Ⓓ \$588
- 8.** John is expecting to get a raise. If the raise is $\frac{1}{4}$ of his weekly salary, what will John's new weekly salary be?
- Ⓐ \$150
 - Ⓑ \$750
 - Ⓒ \$2,400
 - Ⓓ \$3,000