NEW MEXICO MEASURES OF STUDENT SUCCESS AND ACHIEVEMENT

NM-MSSA

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Mathematics

Grade 5 · Practice Test

NEW MEXICO
Public Education Department

cognia™

Mathematics Session 1

1. Cathy bought $2\frac{5}{6}$ pounds of strawberries at a grocery store. She kept $1\frac{1}{4}$ pounds and gave the rest to Ricardo.

   How many pounds of strawberries did Cathy give to Ricardo?

   A $1\frac{4}{2}$

   B $1\frac{2}{5}$

   C $1\frac{1}{6}$

   D $1\frac{7}{12}$

2. Which number sentences are true? Select the **two** correct answers.

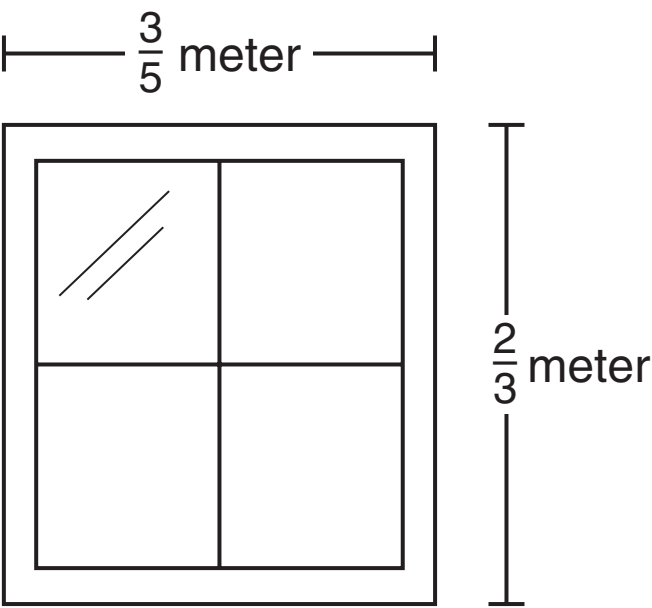   **A** $7.168 < 7.68$

   B $7.8 > 7.86$

   C $7.86 < 7.089$

   D $7.06 > 7.8$

   E $7.45 > 7.449$

3. A window in the shape of a rectangle and its dimensions are shown.

What is the area of the window?

A $\frac{1}{3}$ square meter

B $\frac{2}{5}$ square meter

C $\frac{5}{8}$ square meter

D $\frac{9}{10}$ square meter

GO ON ➡

Use the information below to answer questions 4 and 5.

Ms. Barry showed her students this expression.

$36 \div (6+3) + (6-3)$

She asked the students to write an equivalent expression.

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4. Here are four students' expressions.
- Cala: $36 \div (9+3)$
- Martin: $(36 \div 9) + (6-3)$
- Tisa: $36 \div 9 + 3$
- Zhong: $(36 \div 6) + (36 \div 3) + 3$

Which students wrote a correct equivalent expression?

A Cala and Martin

B Martin and Tisa

C Tisa and Cala

D Zhong and Martin

5. Eli said the value of the expression is 3.

Is Eli correct?

A Yes, because $36 \div 6 = 6$ and $6 - 3 = 3$.

B Yes, because $9 + 3 = 12$ and $36 \div 12 = 3$.

C No, because $36 \div 9 = 4$ and $4 + 3 = 7$.

D No, because $6 + 12 = 18$ and $18 + 3 = 21$.

GO ON

6. Ms. Henry asked her students to solve this problem.

> Micah has a rope that is 1.35 meters long. His rope is 1.5 times the length of Angela's rope. What is the length, in meters, of Angela's rope?
>
> - Abby thinks the answer is 0.15 meters because $1.5 - 1.35 = 0.15$.
> - Brian thinks the answer is 0.9 meters because $1.35 \div 1.5 = 0.9$.
> - Lance thinks the answer is 2.25 meters because $1.35 \times 1.5 = 2.25$.
> - Darius thinks the answer is 2.85 meters because $1.5 + 1.35 = 2.85$.

Which student used a correct approach to solve the problem?

A Abby

B Brian

C Lance

D Darius

7. Nicole and Vivien wrote expressions in different forms to represent this calculation.
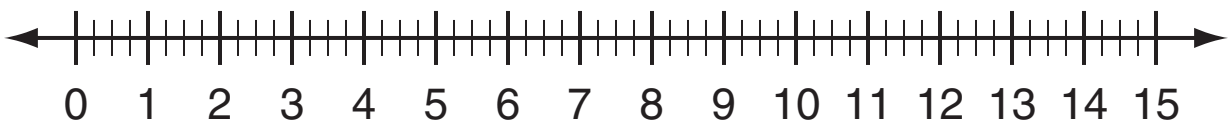
Subtract 4 from 12 and multiply by 6.

Write **two** expressions in different forms that represent this calculation. Show or explain why both expressions represent the calculation.

8. Jason cuts a 15-inch board into 4 equal pieces. He creates this number line to help him find the length of the pieces.

What is the length of each of the 4 pieces Jason cut?

A $3\frac{1}{4}$ in.

B $3\frac{3}{4}$ in.

C $4\frac{1}{4}$ in.

D $4\frac{3}{4}$ in.

9. A library has 100,000 books.

What is another way to write 100,000?

A 100×10^2 because this is equal to 100×100

B 10×10^4 because this is equal to $10 \times 10{,}000$

C 100×10^4 because this is equal to $100 \times 10{,}000$

D 10×10^5 because this is equal to $10 \times 100{,}000$

GO ON

10. The distance from Lillian's house to her cousin's house is 30 miles. The distance from Lillian's house to her grandma's house is $\frac{1}{5}$ the distance from Lillian's house to her cousin's house.

Based on this information, what is the distance from Lillian's house to her grandma's house?

A 150 miles

B 30 miles

C 25 miles

D 6 miles

11. Which plan tells how to solve $754.2 \div 10^3$?

A divide 754.2 by 10

B multiply 754.2 by 10

**C** divide 754.2 by 1,000

D multiply 754.2 by 1,000

12. A number is multiplied by 10^4.

Which statement describes how the decimal point in the number changes when finding the product?

A The decimal point moves 4 places to the left.

B The decimal point moves 10 places to the left.

C The decimal point moves 4 places to the right.

D The decimal point moves 10 places to the right.

13. Pat graphed the corresponding terms of two patterns. The *x*-coordinate is from the first pattern and the *y*-coordinate is from the second pattern.
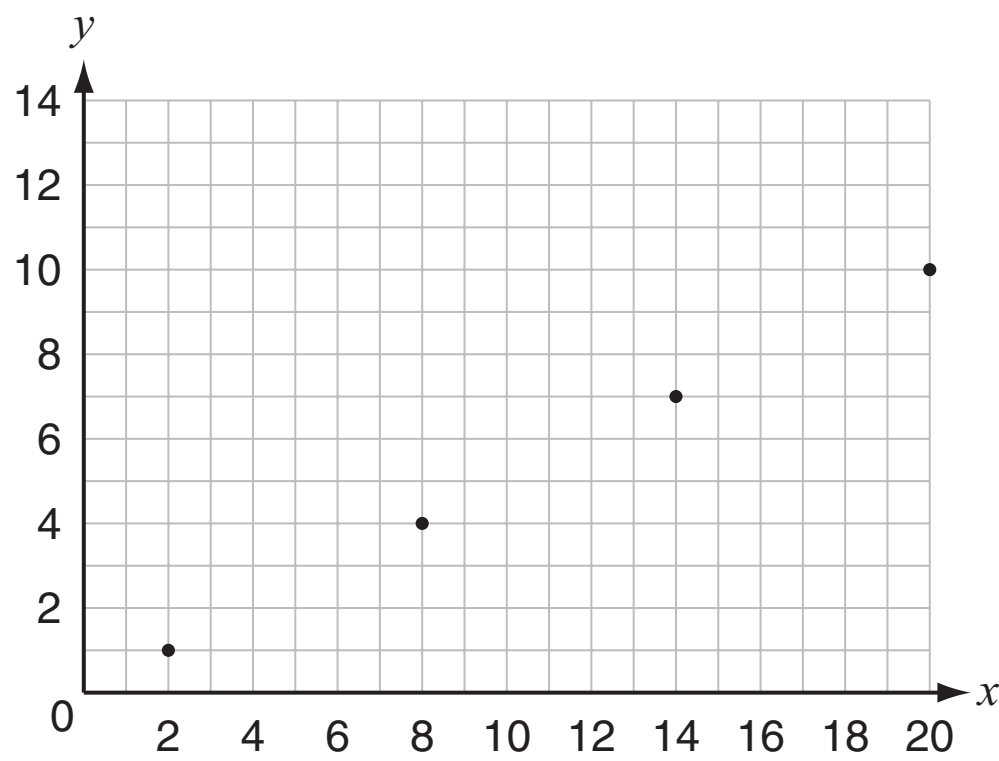
Based on the graph, what is the relationship between the corresponding terms?

A The numbers in the second pattern are half the numbers in the first pattern.

B The numbers in the second pattern are two times the numbers in the first pattern.

C The numbers in the second pattern are one less than the numbers in the first pattern.

D The numbers in the second pattern are three more than the numbers in the first pattern.

GO ON

This question has three parts. Be sure to answer all parts of the question.

14. Ken painted some furniture. He used $\frac{3}{4}$ gallon of gray paint and $\frac{3}{8}$ gallon of white paint.

    a. How many total gallons of paint did Ken use? Use words or numbers to explain how you know.

Maureen also painted some furniture. She used $\frac{11}{16}$ gallon of blue paint and $\frac{1}{4}$ gallon of white paint.

    b. Who used more total gallons of paint, Ken or Maureen? Use words or numbers to explain how you know.

Ken and Maureen each painted one more piece of furniture. Ken used $\frac{3}{16}$ gallon of paint, and Maureen used $\frac{3}{8}$ gallon of paint.

Maureen thinks she used more total gallons of paint to paint all her furniture than Ken used to paint all his furniture.

   c. Use words or numbers to explain whether Maureen is correct.

15. Jan claims that since every square has four right angles, every rhombus must also have four right angles. Which statement **best** describes Jan's claim?

    A Jan is correct because every square is a rhombus.

    B Jan is correct because every rhombus is a square.

    C Jan is incorrect because not every square is a rhombus.

    D Jan is incorrect because not every rhombus is a square.

16. Mrs. Dorame cut a pie into 8 equal slices. She gave $\frac{1}{4}$ of the pie to her neighbor, and she ate $\frac{1}{8}$ of the pie. Which picture shows how much of the pie Mrs. Dorame has left?
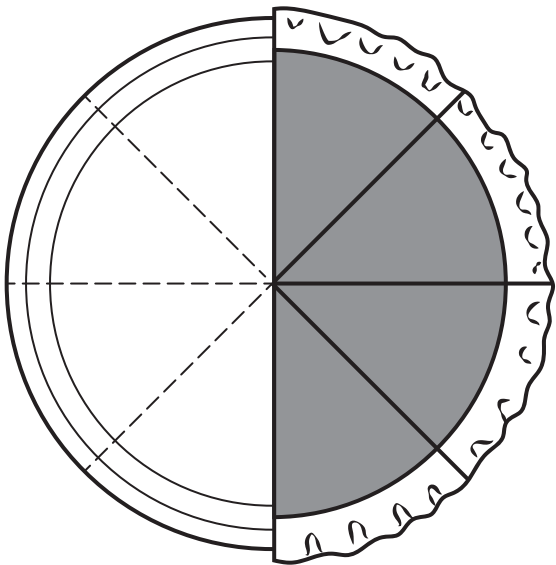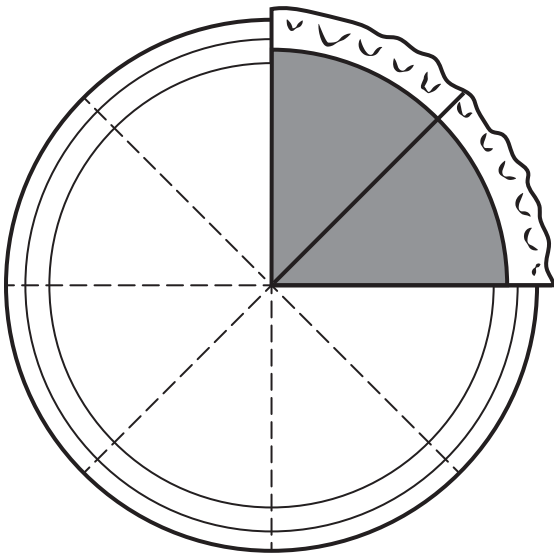
A

B

C

D

GO ON
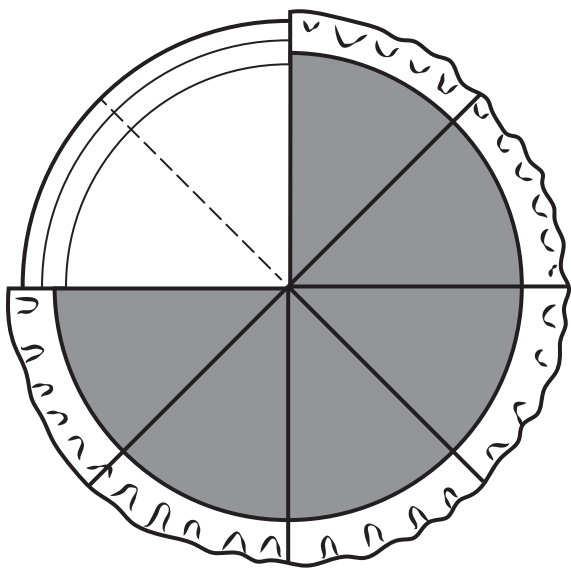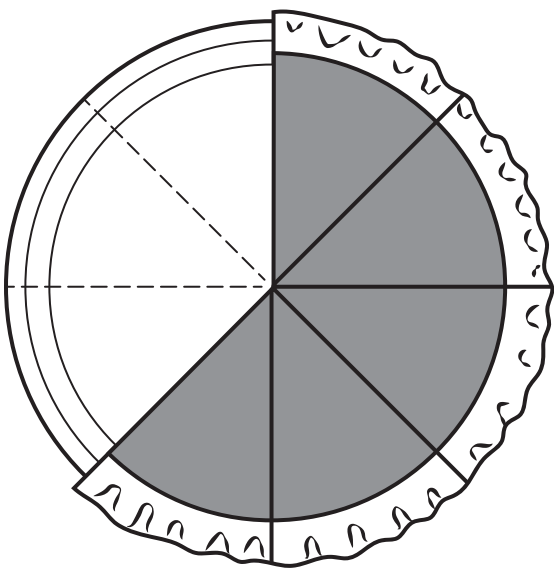
17. A word problem is shown.

> Anquan's brother is $\frac{3}{4}$ yard tall. Anquan is $2\frac{1}{4}$ times as tall as his brother.
>
> Based on this information, how many yards tall is Anquan?

Which equation represents the solution to this problem?

A $\dfrac{3}{4} \times \dfrac{4}{9} = \dfrac{12}{36}$

B $\dfrac{3}{4} \times \dfrac{9}{4} = \dfrac{27}{16}$

C $\dfrac{4}{3} \times \dfrac{9}{4} = \dfrac{36}{12}$

D $\dfrac{4}{3} \times \dfrac{4}{9} = \dfrac{16}{27}$

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18. Marco is using this equation to determine the quotient of two numbers, a and b.

$a \div b = \boxed{}$

Neither a nor b is equal to zero.

Which equation shows a way that Marco can check his answer?

A $\boxed{} + b = a$

B $\boxed{} - b = a$

C $\boxed{} \times b = a$

D $\boxed{} \div b = a$

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Mathematics Session 2

19. In which direction does the number 5 in the ordered pair (5, 7) tell you to move when starting from the origin?

    A up on the *y*-axis

    B down on the *y*-axis

    C left on the *x*-axis
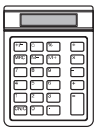
    D right on the *x*-axis

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GO ON

20. Ms. Smith has three bags of rice. She records the weight of each bag of rice on this line plot.

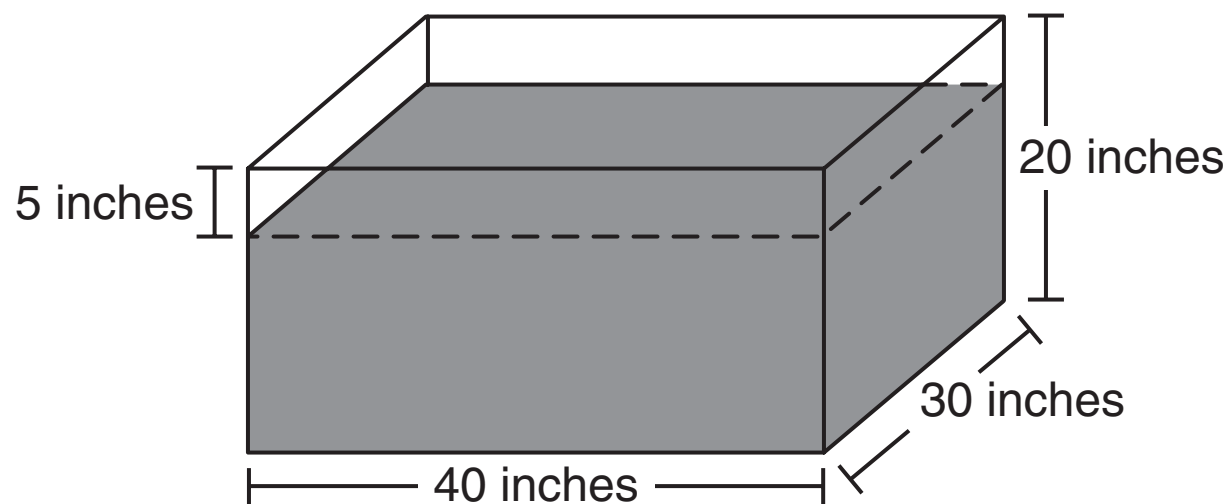**Weight of Bags of Rice (pounds)**
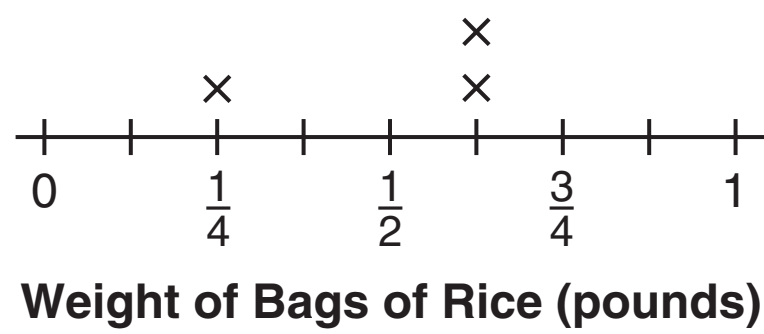
What is the total weight of Ms. Smith's bags of rice?

A $\frac{7}{8}$ pound

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

C $1\frac{1}{2}$ pounds

D $1\frac{3}{4}$ pounds

GO ON

21. Linda is putting soil in a planter that is in the shape of a rectangular prism. She will leave a 5-inch space between the soil and the top of the planter, as shown.

What is the volume of the soil Linda will put into the planter?

A 15,000 cubic inches

B 18,000 cubic inches

C 24,000 cubic inches

D 30,000 cubic inches

22. Which situation is **best** represented by the expression $(24 - 3) \div 7$?

A There are 24 students in Mr. Lane's class. Three students are absent. Mr. Lane divides the students who are present into 7 equal groups.

B There are 24 students in Mr. Lane's class. Seven students are absent. Mr. Lane divides the students who are present into 3 equal groups.

C There were 24 students in Mr. Lane's class. Three new students joined the class. Mr. Lane divides the students who are present into 7 equal groups.

D There are 21 students in Mr. Lane's class. Mr. Lane divides the students into 3 equal groups.

GO ON

23. Marina bought an aquarium in the shape of a rectangular prism with the measures shown.

18 in.

Base area = 432 sq. in.
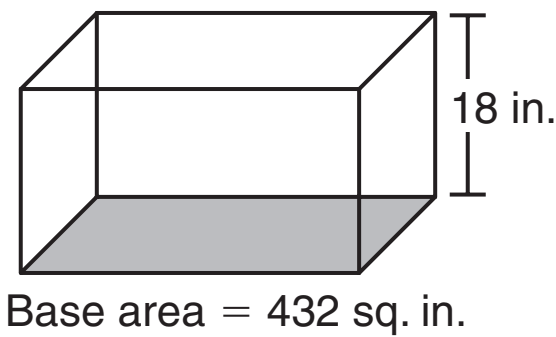
Which statement about the volume of the aquarium is true?

A The volume can be calculated by dividing the base area by the height.

B The volume can be calculated by multiplying the base area by the height.

C The volume cannot be calculated, because the base area is not measured in cubic units.

D The volume cannot be calculated, because the length and width of the aquarium are unknown.

GO ON

24. Curt marked this hundredths grid to represent a mathematical expression.
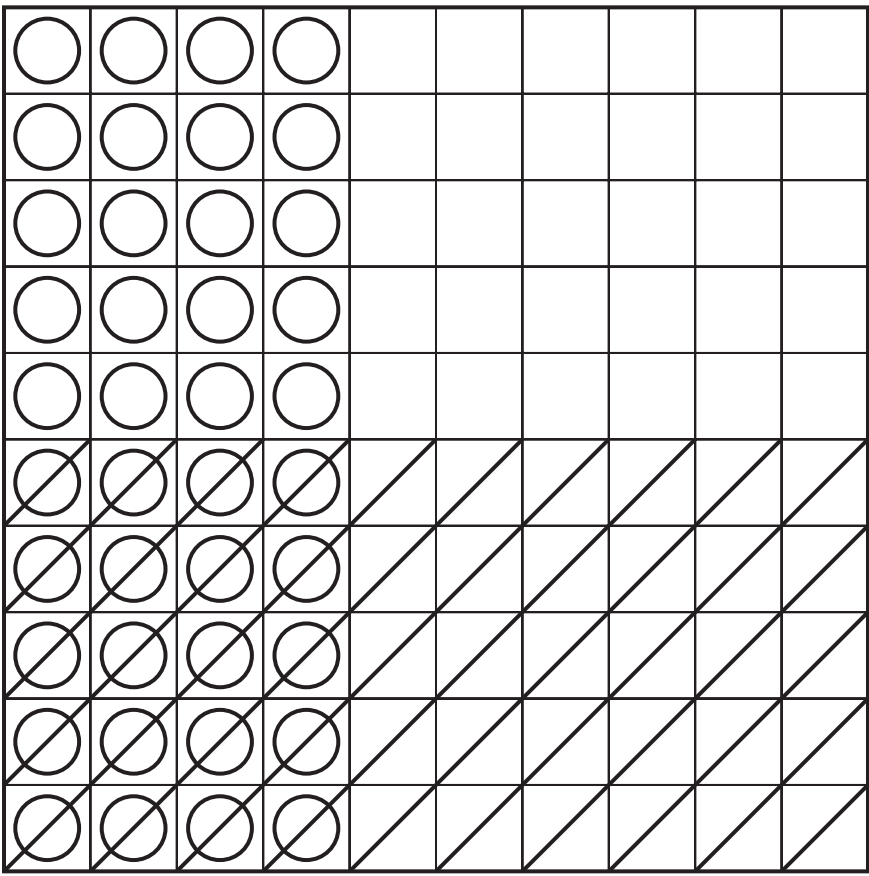
Key

Each ☐ = 0.01

Which expression is **best** represented on the hundredths grid?

A $20 + 40$

B $50 - 40$

C 0.4×0.5

D $0.4 \div 0.2$

This question has two parts. Be sure to answer all parts of the question.

25. The mass of an object is forty-one and seven hundred nine thousandths kilograms.

a. Write the mass in number form.

b. Write a number sentence using $>$, $<$, or $=$ to compare the number you wrote in part (a) and the number 41.097. Use words or numbers to explain why your comparison is correct.
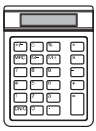
GO ON ➡

26. Four points are plotted on this coordinate grid.
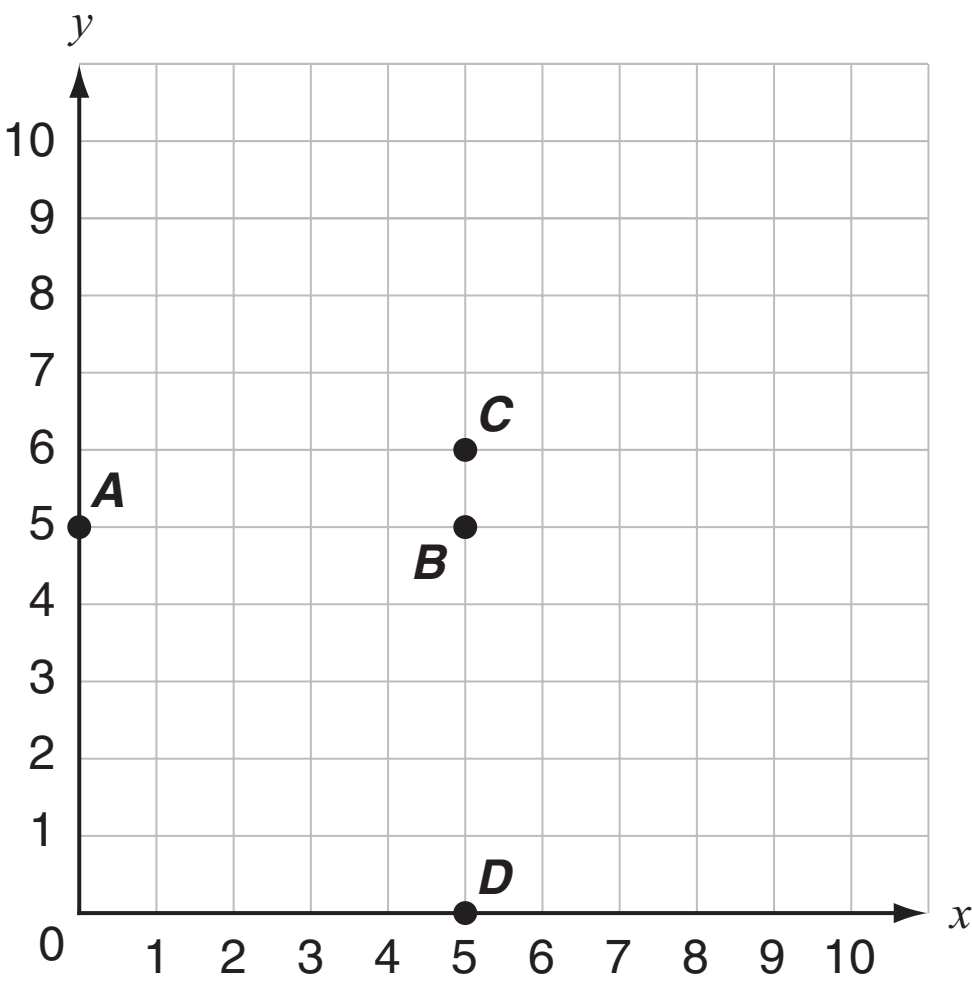
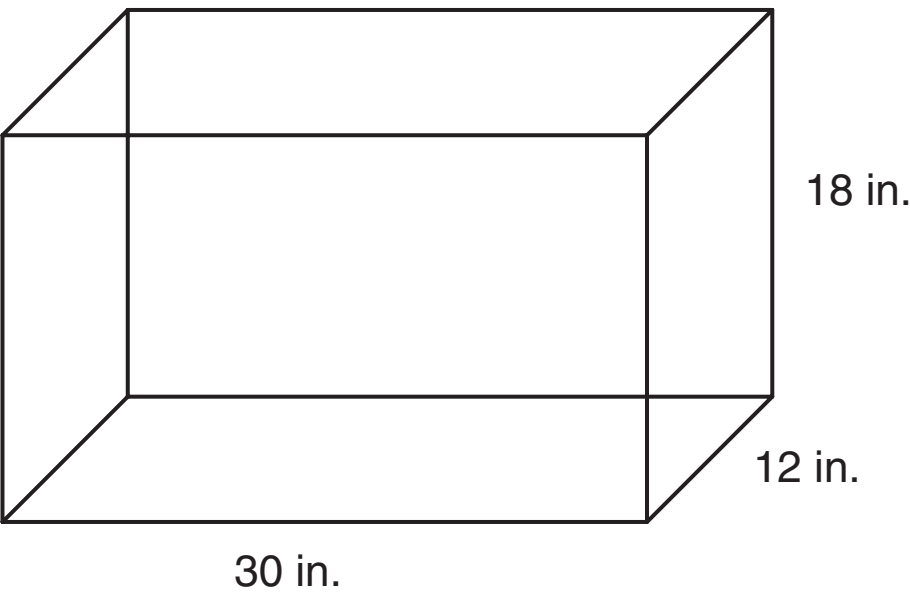Which plotted point has *x*- and *y*-coordinates that are the same?

A point *A*

B point *B*

C point *C*

D point *D*

GO ON

Use the information below to answer questions 27 and 28.

This drawing shows the dimensions, in inches, of Brett's rectangular fish tank.

18 in.

12 in.

30 in.

27. Brett puts the fish tank on a shelf that is $6\frac{1}{2}$ feet long. The longest side of the fish tank goes along the length of the shelf.

How many **inches** longer is the shelf than the fish tank?

A $23\frac{1}{2}$ inches

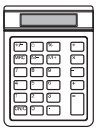**B** 35 inches

C $42\frac{1}{2}$ inches

D 48 inches

GO ON ➡

28. What is the volume, in cubic inches, of Brett's fish tank?

    A 540

    B 2,232

    C 6,480

    D 9,720

29. Mary measured 6 cups of flour by filling a $\frac{1}{2}$-cup measuring cup several times.

Which expression can be used to find the number of times Mary filled the $\frac{1}{2}$-cup measuring cup?

    A $\frac{1}{2} + 6$

    B $\frac{1}{2} \times 6$

    C $6 - \frac{1}{2}$

    D $6 \div \frac{1}{2}$

SESSION
2

30. Hugo creates two patterns to show the values for Pattern A, (*x*), and for Pattern B, (*y*), as shown.

Pattern A (*x*)	Pattern B (*y*)
1	7
2	8
3	9
?	?

Hugo extends his patterns. He makes ordered pairs (*x, y*) using corresponding terms from Pattern A and Pattern B.

Which ordered pair (*x, y*) could Hugo write from his patterns?

A (8, 13)

B (8, 15)

C (9, 14)

D (9, 15)

SESSION 2

**31.** Michael lists the properties of all parallelograms.

Which statements are true? Select the **two** true statements.

A Every square has all the properties of a parallelogram.

B Every polygon has all the properties of a parallelogram.

C Every rectangle has all the properties of a parallelogram.

D Every trapezoid has all the properties of a parallelogram.

E Every quadrilateral has all the properties of a parallelogram.
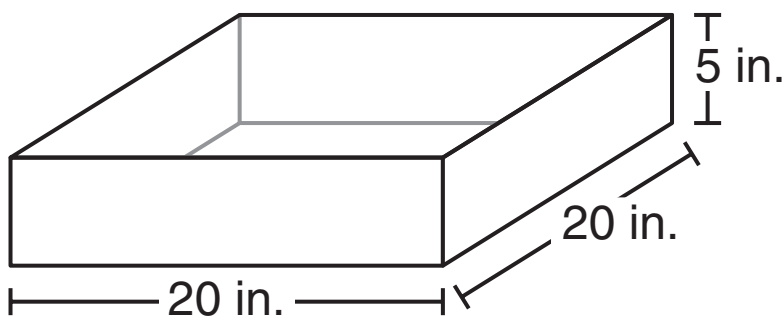
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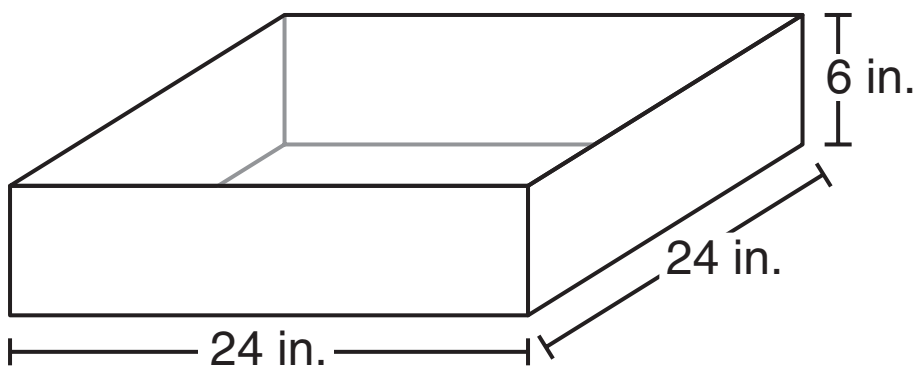*This question has three parts. Be sure to answer all parts of the question.*

32. Elana will bake a three-layer cake using these square-shaped pans.

4 in.

16 in.

16 in.

Pan A

5 in.

20 in.

20 in.

Pan B

6 in.

24 in.

24 in.
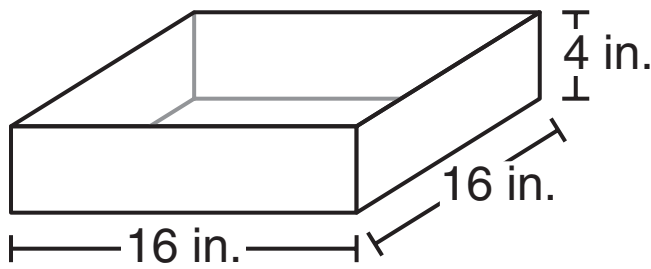
Pan C

a. What is the volume, in cubic inches, of pan C? Use words or numbers to explain your answer.

b. Elana completely filled all three pans with cake batter. What is the total volume, in cubic inches, of the cake batter she used? Use words or numbers to explain your answer.

Elana plans to bake another three-layer cake. The lengths and widths of the pans are the same but the height of each pan is 1 inch less than the pans she used for her first cake. Elana completely filled all three pans with cake batter.

c. Based on the measurements of the cake pans, what is the difference, in cubic inches, between the total volume of the batter Elana used for the first cake and the total volume of the batter she used for the second cake? Use words or numbers to explain your answer.

GO ON
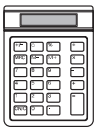
33. Lawrence poured 95 milliliters of milk from a full 1-liter bottle.

What is the amount of milk remaining in the bottle?

A 5.0 milliliters

B 9.05 milliliters

C 50 milliliters

D 905 milliliters

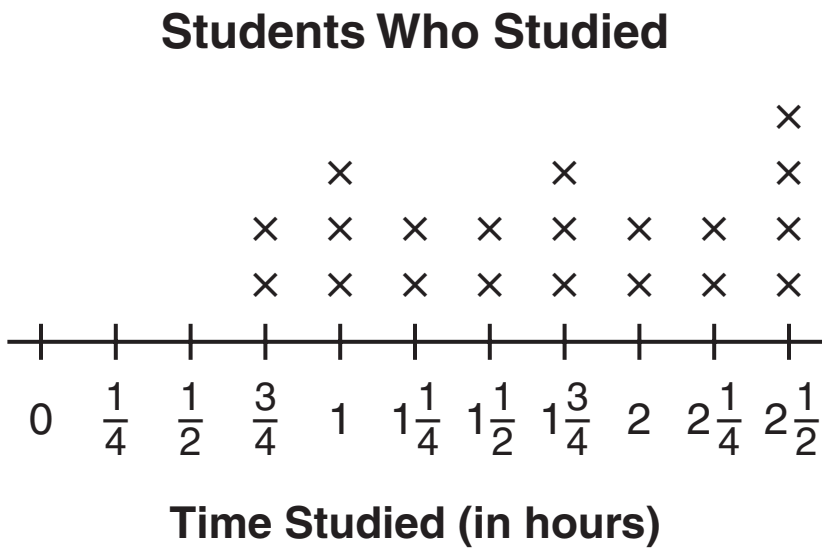**34.** A division equation is shown.

$$\frac{1}{4} \div 3 = y$$

Which multiplication equation has the same solution for y as the division equation?

A $y \times 3 = \dfrac{1}{4}$

B $\dfrac{1}{4} \times 3 = y$

C $y \times \dfrac{1}{4} = 3$

D $4 \times \dfrac{1}{3} = y$

GO ON

35. The line plot shows the number of hours that students in Mr. Costa's class studied last week.

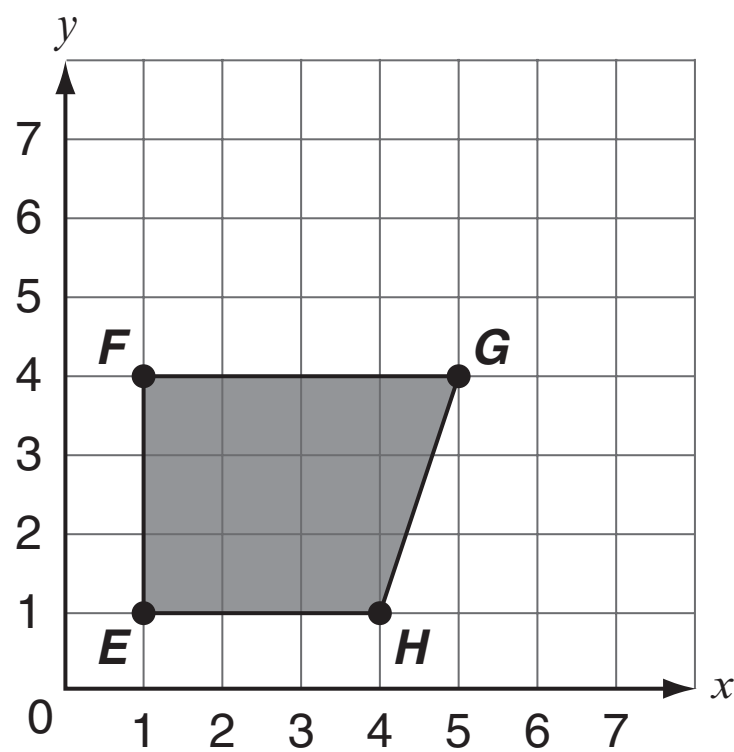**Students Who Studied**

Time Studied (in hours)

What is the difference between the greatest number of hours studied and the least number of hours studied?

A $1\frac{1}{4}$ hours

B $1\frac{3}{4}$ hours

C $2\frac{1}{4}$ hours

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

36. Quadrilateral *FGHE* is shown on a coordinate grid.

Which ordered pair is located **inside** quadrilateral *FGHE*?

A (1, 3)

B (3, 4)

C (4, 3)

D (5, 3)

37. Stella is adding two fractions, as shown.

$$\frac{3}{5} + \frac{2}{7} = ? = \frac{31}{35}$$

Which sum can replace the **?** to make the equation true?

A $\frac{21}{5} + \frac{10}{7}$

B $\frac{21}{10} + \frac{10}{25}$

C $\frac{21}{23} + \frac{10}{15}$

D $\frac{21}{35} + \frac{10}{35}$

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