Steck-Vaughn Adult Education

Aztec Paxen Publishing

Math

Level E

Sampler

A Tutor™ for CASAS GOALS 2 Workbook

- Companion workbook to *A Tutor™ for CASAS GOALS 2 Student Edition*
- Additional practice items aligned to CASAS GOALS 2 and CCRS

Aztec Paxen Publishing

Math

A Tutor™ for CASAS GOALS 2 Workbook

Level E

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About CASAS Math GOALS 2

The CASAS Math GOALS 2 tests measure basic adult math skills and the ability to make calculations and solve word problems that relate to real-world situations and traditional academic contexts. The CASAS Math GOALS 2 tests include multiple-choice items with four answer options. Basic calculators are allowed. Formulas are provided.

The CASAS Math GOALS 2 tests align with the CASAS Competencies and the Adult Education College and Career Readiness (AE-CCR) Mathematics Standards.

CASAS Math GOALS 2 Level E Blueprint

Level E Content Areas	Percentage of Coverage	CCR Standard Code
Number Sense and Operations	20%	NS, RN
Algebraic Thinking	33%	EE, F, A.APR, A.REI, A.CED, F.LE, F.IE
Geometry	25%	G, G.CO, G.SRT, G.GMD, G.MG
Data Analysis, Statistics, and Probability	22%	SP, S.ID

AE-CCR Mathematics Standard Code Key

NS	The Number System
RN	Number and Quantity: The Real Number System
EE	Expressions and Equations
F	Functions
A.APR	Algebra: Arithmetic and Polynomials and Rational Exponents
A.REI	Algebra: Reasoning with Equations and Inequalities
A.CED	Algebra: Creating Equations
F.LE	Functions: Linear, Quadratic, and Exponential Models
F.IF	Functions: Interpreting Functions
G	Geometry
G.CO	Geometry: Congruence
G.SRT	Geometry: Similarity, Right Triangles, and Trigonometry
G.GMD	Geometry: Geometric Measurement and Dimension
G.MG	Geometry: Modeling with Geometry
SP	Statistics and Probability
S.ID	Statistics and Probability: Interpreting Categorical and Quantitative Data

Using *A Tutor™ for CASAS Math GOALS 2 Workbook*

A Tutor™ for CASAS Math GOALS 2 Level E: Workbook is designed to be used hand-in-hand with *A Tutor™ for CASAS Math GOALS 2 Level E: Student Edition.* The student edition includes instruction and practice for the Adult Education College and Career Readiness standards assessed on the CASAS Math GOALS 2 test.

Practice Sets

A Tutor™ for CASAS Math GOALS 2 Level E: Workbook includes practice sets for each lesson in *A Tutor™ for CASAS Math GOALS 2 Level E: Student Edition.* Each practice set provides additional items similar to those found on the CASAS Math GOALS 2 Level E test.

- Use the practice sets after completing the corresponding student edition lesson if you feel you need additional practice.
- Use the practice sets after completing the unit reviews in the student edition for areas that need review and improvement.

Unit Reviews

A Tutor™ for CASAS Math GOALS 2 Workbook unit reviews allow you to check your understanding of the skills presented in each unit. Use the corresponding Unit Review Analysis Charts on pages 175–186 to identify strengths and weaknesses. These charts will help you determine if you need to go back to any of the lessons before continuing.

Answers and Explanations

A Tutor™ for CASAS Math GOALS 2 Workbook includes explanations for the correct answers to all practice items. After completing a practice set or unit review, check your answers on pages 124–174. For each item answered incorrectly, read the provided explanation to help you rework the item to obtain the correct answer.

Please remember, there may be more than one way to solve a math problem. The explanations show one method of solving a problem. You may have used a different method than the one provided to correctly answer the question.

Test-Taking Tips

- Read the directions very carefully. Read through them word for word.
- Read each question carefully. Make sure you know what it means and what you have to do.
- Read all of the answer options carefully, even if you think you know the answer.
- Answer all of the questions. If you cannot find the right answer, rule out the answers that you know are wrong. Then try to figure out the right answer. If you still do not know, make your best guess.
- If you cannot figure out the answer on the paper-and-pencil test, put a light mark by the question number on the answer sheet and come back to it later. Erase your marks before you finish. If you cannot figure out the answer on the online test, flag the item for review.
- Do not change an answer unless you are sure your first answer is wrong. Usually, your first idea is the correct answer.
- If you get nervous, stop for a while. Take a few breaths and relax. Then start working again.

Practice 1 Proportional Relationships Between Units of Linear Measure

6.RP.3.d

Use the table to convert units.

Customary to Metric	Metric to Customary
1 inch = 2.54 centimeters	1 centimeter ≈ 0.39 inch
1 foot ≈ 0.30 meter	1 meter ≈ 3.28 feet
1 yard ≈ 0.91 meter	1 meter ≈ 1.09 yards
1 mile ≈ 1.61 kilometers	1 kilometer ≈ 0.62 mile

1 A blueprint for a new house shows a porch with a length of 18 feet. What is the approximate length in meters? Use 1 ft ≈ 0.30 m.

A. 59.02 meters **B.** 46.15 meters

C. 7.02 meters **D.** 5.40 meters

2 The Occupational Safety and Health Association (OSHA) requires that employers install guardrail systems that will protect workers from falling to lower levels. The top edge height of the rails must be 42 inches above the walking working surface. What is the approximate height of the rails in centimeters? Use 1 in. = 2.54 cm.

A. 12.81 centimeters

B. 16.54 centimeters

C. 106.68 centimeters

D. 137.70 centimeters

3 A pasta box is 13.7 centimeters tall. Approximately how tall is the pasta box in inches? Use 1 cm ≈ 0.39 in.

A. 4.18 inches **B.** 5.34 inches

C. 35.13 inches **D.** 44.92 inches

4 Tam is training to run a race that is 4 miles. What is the approximate length of the race in kilometers? Use 1 mi ≈ 1.61 km.

A. 6.44 kilometers **B.** 4.36 kilometers

C. 3.67 kilometers **D.** 2.95 kilometers

5 Crutches are often adjustable up to a height of 2 yards. Approximately how long is this in meters? Use 1 yd ≈ 0.91 m.

A. 1.28 meters **B.** 1.82 meters

C. 22.0 meters **D.** 26.5 meters

6 The length of a hockey arena is 62 meters. What is the approximate length in yards? Use 1 m ≈ 1.09 yd.

A. 24.18 yards **B.** 56.88 yards

C. 67.58 yards **D.** 98.97 yards

7 According to the Americans with Disabilities Act, retail stores are required to have aisles wide enough for wheelchairs. The minimum width for single wheelchair passage is 32 inches. What is this width in centimeters? Use 1 in. = 2.54 cm.

A. 9.76 centimeters

B. 12.60 centimeters

C. 81.28 centimeters

D. 109.91 centimeters

8 City officials are designing several dog parks throughout the city. Local ordinances state that dog parks should be at least 150 feet from a residence. What is the approximate minimum distance from a residence in meters? Use 1 ft ≈ 0.30 m.

A. 45.00 meters **B.** 137.61 meters

C. 163.50 meters **D.** 491.80 meters

9 A set of training materials arrives in a box that is 51 centimeters tall. What is the approximate height of the box in inches? Use 1 cm ≈ 0.39 in.

A. 167.28 inches

B. 130.77 inches

C. 19.89 inches

D. 15.55 inches

10 A map shows the distance from Atlanta, GA to Savannah, GA to be 248.3 miles. What is the approximate distance between the two cities in kilometers? Use 1 mi ≈ 1.61 km.

A. 154.22 kilometers **B.** 226.95 kilometers

C. 271.67 kilometers **D.** 399.76 kilometers

11 The length of a wrench is 14 inches. What is the approximate length of the wrench in centimeters? Use 1 in. = 2.54 cm.

A. 45.90 centimeters **B.** 35.56 centimeters

C. 5.51 centimeters **D.** 4.27 centimeters

12 An agreement with a marina states that boat owners cannot dock a boat longer than 6.5 meters at any dock. What is the approximate length in feet? Use 1 m ≈ 3.28 ft.

A. 1.98 feet **B.** 5.98 feet

C. 17.11 feet **D.** 21.32 feet

13 The Deepwater Horizon oil spill began on April 20, 2010. As a result of this spill, over 1,300 miles of shoreline were polluted. Approximately how many kilometers of shoreline is this? Use 1 mi ≈ 1.61 km.

A. 807.45 kilometers

B. 812.50 kilometers

C. 2,093.00 kilometers

D. 2,198.00 kilometers

14 New cars often come with a manufacturer's warranty, which offers coverage for at least 3 years or 36,000 miles. Approximately how many kilometers is this? Use 1 mi ≈ 1.61 km.

A. 22,360.25 kilometers

B. 32,904.00 kilometers

C. 39,387.31 kilometers

D. 57,960.00 kilometers

15 Vega is creating a welcome banner and determines she needs 36 inches of fabric for the banner. Approximately how many centimeters of fabric does Vega need? Use 1 in. = 2.54 cm.

A. 10.98 centimeters

B. 14.17 centimeters

C. 91.44 centimeters

D. 98.03 centimeters

16 The Nile River is 4,132 miles long. What is the approximate length of the river in kilometers? Use 1 mi ≈ 1.61 km.

A. 2,566.46 kilometers

B. 3,776.65 kilometers

C. 4,520.79 kilometers

D. 6,652.52 kilometers

17 Corwin is training to compete in a 22-mile bike race. What is the approximate length of the race in kilometers? Use 1 mi ≈ 1.61 km.

A. 13.66 kilometers

B. 20.11 kilometers

C. 24.07 kilometers

D. 35.42 kilometers

18 A city park posts signs advising visitors to maintain 40 inches of distance from other visitors. Approximately how many centimeters is this? Use 1 in. = 2.54 cm.

A. 12.20 centimeters

B. 15.75 centimeters

C. 101.60 centimeters

D. 131.15 centimeters

19 The perimeter of a rectangular swimming pool is 80 feet. What is the approximate perimeter in meters? Use 1 ft ≈ 0.30 m.

A. 24.00 meters

B. 31.50 meters

C. 203.20 meters

D. 258.06 meters

20 The Spring Temple Buddha, located in China, stands 128 meters tall. Approximately how tall is the statue in feet? Use 1 m ≈ 3.28 ft.

A. 419.84 feet **B.** 325.12 feet

C. 50.39 feet **D.** 39.04 feet

21 The distance from Paris, France to New York City is approximately 5,840 kilometers. What is the approximate distance between the two cities in miles? Use 1 km ≈ 0.62 mi.

A. 9,419.35 miles

B. 6,389.50 miles

C. 5,337.76 miles

D. 3,620.80 miles

Practice 7 Add Polynomials

A.APR.1

1 Enafa buys and sells clothing items at consignment events. She uses polynomials to represent the number of pants (p), shirts (s), and pairs of footwear (f) she buys or sells at an event. Enafa goes to two events and records her activities with the polynomials $-2p + 5s + 3f$ and $6p + s - 3f$. What is sum of the two events?

A. $4p + 6s$ **B.** $4p + 5s$

C. $8p + 6s + 6f$ **D.** $-8p + 4s + 6f$

2 Which triangle has a perimeter of $60a + 30$?

Perimeter = sum of all sides of a polygon

A. a triangle with sides measuring $28a + 33$, $18a + 7$, and $14a - 14$

B. a triangle with sides measuring $12a + 12$, $22a + 3$, and $26a + 15$

C. a triangle with sides measuring $10a + 42$, $16a + 3$, and $4a - 15$

D. a triangle with sides measuring $20a + 16$, $13a - 5$, and $27a + 9$

3 What is the sum?
$(12x - 5y) + (-7x + 2y)$

A. $5x - 7y$ **B.** $5x - 3y$

C. $5x + 3y$ **D.** $19x + 7y$

4 When editing a photo, Mateo move sliders to alter the exposure (e), contrast (c), and vibrance (v) of a photo. Mateo edits a photo and represents the changes using the polynomial $0.5e - 6c + 3v$. He goes back and edits the newer version of the photo, representing his additional edits with $-0.7e + 20c + 4v$. What is the sum of the changes Mateo makes to the photo?

A. $-1.2e + 26c + v$

B. $-0.2e - 14c + v$

C. $-0.2e + 14c + 7v$

D. $1.2e + 26c + 7v$

5 What is the sum?
$(x^2 + 4xy + 2y^2) + (-2x^2 - 2yx + 3y^2)$

A. $-3x^2 - 6xy + y^2$

B. $-3x^2 + 2xy + 5y^2$

C. $-x^2 + 6xy - y^2$

D. $-x^2 + 2xy + 5y^2$

6 What is the sum?
$(3ab^2 + 2ab - 6) + (2a^2 - 14ab + 3)$

A. $5ab^2 - 12ab - 3$

B. $5ab^2 + 16ab + 9$

C. $2a^2 + 3ab^2 - 12ab - 3$

D. $2a^2 + 3ab^2 + 12ab + 3$

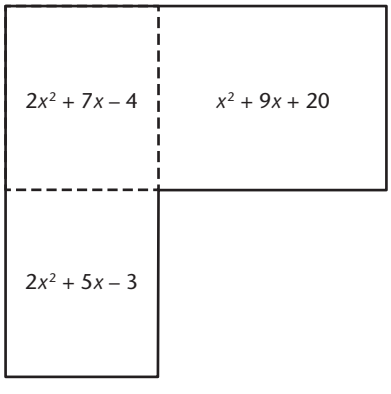
7 A rectangle has a length of $3j + 5k$ and a width of $-2j + 8k$. What is the perimeter of the rectangle?

Perimeter = sum of all sides of a polygon

A. $j + 13k$ **B.** $j + 26k$

C. $2j + 13k$ **D.** $2j + 26k$

8 An irregular shape is divided into three rectangles with the areas given. What is the total area of the figure?



A. $(3x^2 + 16x + 16)$ square units

B. $(4x^2 + 12x - 7)$ square units

C. $(5x^2 + 21x + 13)$ square units

D. $(5x^2 + 16x + 27)$ square units

9 What is the sum?
$(3ab + 6b) + (-5a - 2ab) + (6a - 10b)$

A. $a + ab - 4b$ **B.** $a - 2ab - 10b$

C. $6a + 4ab - 6b$ **D.** $11a + 5ab + 16b$

10 What is the sum?
$(4x^2 - 7y^2) + (2x^2 - 5xy + 3y^2 + 8)$

A. $6x^2 - 5xy + 4y^4 + 8$

B. $6x^2 - 12xy + 3y^2 + 8$

C. $6x^2 - 5xy - 4y^2 + 8$

D. $6x^2 - 5xy + 3y^2 + 1$

11 A triangle has sides measuring $3a + 8$, $-4b + 12$, and $2a + 5b$. What is the perimeter of the triangle?
Perimeter = sum of all sides of a polygon

A. $17a + 9b$ **B.** $5a + b + 20$

C. $5a + 9b + 18$ **D.** $a + 25b$

12 Lei participates in a triathlon every year. After each triathlon, she compares her new times to her times from the previous year by writing a trinomial to represent her running time (r), her biking time (b), and her swimming time (s). After last year's triathlon, Lei recorded $3r - 5b - s$. This year, Lei records $-5r + 3b + 3s$. What is the sum of the polynomials?

A. $-2r - 2b - 2s$ **B.** $-2r - 2b + 2s$

C. $-2r + 2b + 2s$ **D.** $2r + 2b + 2s$

13 What is the sum?
$(7f - 3fg + 2) + (2fg - 2g - 5) + (f + fg + g)$

A. $f + fg - g - 3$

B. $7f - fg - 2g - 3$

C. $8f - g - 3$

D. $10f - 4fg - 2g$

14 Which polynomial could be added to $x^2 + 3x + 8$ to produce a polynomial with two terms?

A. $4x^3 - 3x - 2$

B. $5x^2 - xy$

C. $8x^2 - 4x - 8$

D. $-6x^2 - 1$

15 Which of the following is *not* a like term of $-2xy$?

A. $-2x$ **B.** $3xy$

C. $\frac{1}{2}xy$ **D.** $7yx$

16 What is the sum?
$(3m + 2p) + (5m - 8p + 6)$

A. $8m - 6p - 6$

B. $8m - 6p + 6$

C. $8m + 6p - 6$

D. $8m + 6p + 6$

17 Kentay adds $5x^2 + 7xy - 3y^2$ to $20x + 8xy + 2y - 20$. How many terms are there in the simplified sum?

A. 4 terms **B.** 5 terms

C. 6 terms **D.** 7 terms

18 Desmond plans to cover his three rectangular garden boxes with new topsoil. The areas of the boxes are as follows: Box 1: $x^2 + 5x + 6$, Box 2: $2x^2 - 6x - 3$, and Box 3: $x^2 + 2x - 3$. Which polynomial represents the total area Desmond needs to cover?

A. $3x^2 - 4x$ **B.** $4x^2 + x$

C. $3x^2 - x + 3$ **D.** $4x^2 + 13x + 12$

19 Two cars brake at the same time. The distance traveled by the first car after the driver hits the brakes is represented by $(0.05x^2 + 0.01x + 0.25)$ meters. The distance traveled by the second car after the driver hits the brakes is represented by $(0.04x^2 + 0.02x + 0.3)$ meters. What is the total distance traveled by the two cars after the drivers hit their brakes?

A. $(0.9x^2 + 0.3x + 5.5)$ m

B. $(0.54x^2 + 0.12x + 0.55)$ m

C. $(0.09x^2 + 0.03x + 0.55)$ m

D. $(0.09x^2 + 0.03x + 0.28)$ m

20 What is the sum?
$(2a^2b - 6ab + b^2) + (7a^2 - 4ab) + (5a^2b - 2ab^2) + (3b^2 + 8)$

A. $7a^2 - 3ab + 2ab^2 + 8$

B. $7a^2 - 10ab + 5a^2b + 4b^2 + 8$

C. $7a^2 - 2ab + 3a^2b - 2ab^2 + 4b^2 + 8$

D. $7a^2 - 10ab + 7a^2b - 2ab^2 + 4b^2 + 8$

Practice 20 Relationships Between Quantities

7.RP.2.a, 7.RP.2.b, 7.RP.2.c, 7.RP.2.d

1 The graph of a proportional relationship is a straight line that passes through the points (4, 240) and (7, 420). The x-value represents the time in hours, and the y-value represents the distance in kilometers. What is the unit rate?

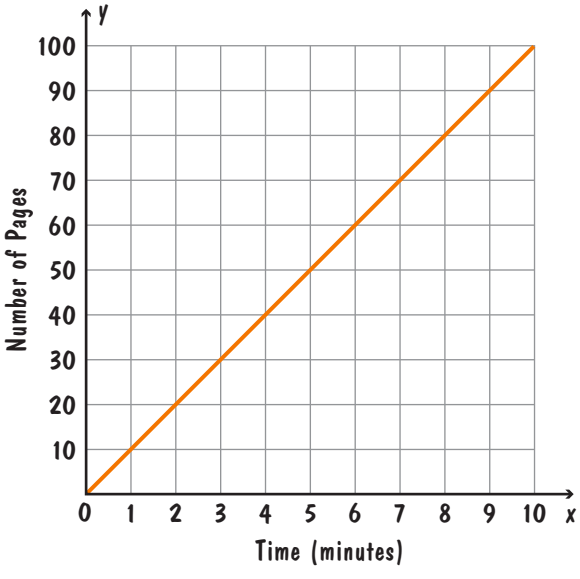
A. 6 kilometers per hour

B. 10 kilometers per hour

C. 60 kilometers per hour

D. 600 kilometers per hour

2 The graph shows a proportional relationship. What is the unit rate for the proportional relationship?



A. $-\frac{1}{10}$ page per minute

B. $\frac{1}{10}$ page per minute

C. 10 pages per minute

D. 100 pages per minute

3 The cost, y, in dollars for streaming data is proportional to the amount of data streamed, x, in gigabytes (GB). The direct proportion equation for Company A is $y = 2.39x$. The table shows the proportional relationship for Company B.

Data Streamed (GB)	Total Cost (dollars)
10	25
15	37.5
20	50
25	62.5

Which carrier has the lower rate?

A. Company A

B. Company B

C. Company A and Company B have the same rate.

D. The relationship cannot be determined.

4 A proportional relationship is represented on a graph. If the constant of proportionality is $\frac{3}{5}$, which of these points could the graphed line pass through?

A. (10, 7)

B. (10, 6)

C. (9, 6)

D. (9, 5)

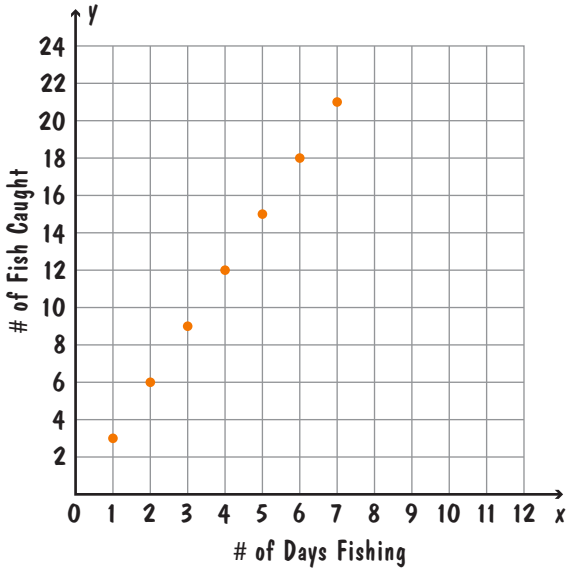
5 The amount of time Kelly hikes is proportional to the distance she hikes. The direct proportion equation is $y = 3.5x$, where x represents her time in hours, and y represents her distance in miles. What is the constant of proportionality?

A. 0.5 **B.** 1.0

C. 3.0 **D.** 3.5

Use the information and graph to answer questions 6 through 9.

The graph shows the proportional relationship between the number of days Maya has been fishing and the number of fish she has caught.



6 What is the constant of proportionality?

A. 1.0

B. 1.5

C. 2.0

D. 3.0

7 Which statement represents the point (5, 15)?

A. It took Maya 15 days to catch 5 fish.

B. It took Maya 15 hours to catch 5 fish.

C. It took Maya 5 days to catch 15 fish.

D. It took Maya 5 hours to catch 15 fish.

8 What equation represents the graphed proportional relationship?

A. $y = \frac{1}{3}x$

B. $y = \frac{2}{3}x$

C. $y = 1x$

D. $y = 3x$

9 If the proportional relationship were to continue as a line on the graph, which of these points could the graphed line pass through?

A. (7, 20)

B. (9, 27)

C. (10, 19)

D. (11, 30)

10 If (9, 7) is a point on the graph of a straight line that passes through the origin, which ordered pair should also appear on that line?

A. (36, 28)

B. (27, 19)

C. (20, 17)

D. (18, 15)

11 The values in the table represent a proportional relationship. Which equation represents this relationship?

x	y
2	0.5
4	1
6	1.5
8	2

A. $y = 1.20x$

B. $y = 0.75x$

C. $y = 0.50x$

D. $y = 0.25x$

12 Which statement represents the direct proportion equation, $y = 7x$?

A. For every 7 units you move right along the x-axis, you move up 1 unit along the y-axis.

B. For every 7 units you move up along the y-axis, you move right 1 unit along the x-axis.

C. For every 7 units you move left along the x-axis, you move up 7 units along the y-axis.

D. For every 7 units you move down along the y-axis, you move right 7 units along the x-axis.

Practice 33 Find Unknown Dimensions of Shapes

7.G.6

Area and Volume Formulas

Area of a parallelogram = base × height
Area of a rectangle = length × width
Area of a triangle = $\frac{1}{2}$ (base × height)
Volume of a prism = area of the base × height

1 A tile is shaped liked a parallelogram. It has an area of 64 square centimeters and a height of 16 centimeters. What is the base of the tile?

A. 4 centimeters **B.** 8 centimeters
C. 64 centimeters **D.** 80 centimeters

2 Hugh is building a rectangular wall that has an area of 756 square feet. The wall has a length of 21 feet. What is the width of the wall?

A. 18 feet **B.** 24 feet
C. 36 feet **D.** 38 feet

3 Ashton buys a flag folded in the shape of a triangle. The area of the triangle is 136 square inches, and the height of the triangle is 17 inches. What is the base of the triangle?

A. 54 inches **B.** 32 inches
C. 16 inches **D.** 14 inches

4 Janae has a cereal box in the shape of a rectangular prism with a volume of 126 cubic inches. The length is 7 inches, and the width is 2 inches. What is the height of the cereal box?

A. 112 inches **B.** 82 inches
C. 18 inches **D.** 9 inches

5 Fatima has a shipping box in the shape of a rectangular prism. The volume of the box is 8,160 cubic centimeters. The base of the box has an area of 255 square centimeters. What is the height of the box?

A. 32 centimeters **B.** 58 centimeters
C. 64 centimeters **D.** 76 centimeters

6 Micah uses a plastic triangular prism to reflect rays of the sun. The volume of the prism is 96 cubic centimeters. The triangular base of the prism has a height of 6 centimeters and a base of 4 centimeters. What is the height of the prism?

A. 4 centimeters
B. 8 centimeters
C. 16 centimeters
D. 32 centimeters

7 A rectangular mirror has an area of 432 square inches and a length of 12 inches. What is the width of the mirror?

A. 16 inches **B.** 18 inches
C. 36 inches **D.** 42 inches

8 Tristyn buys a plot of land that is in the shape of a parallelogram. It has an area of 9,630 square feet. The base of the plot of land is 80.25 feet. What is the height of the plot of land?

A. 110 feet **B.** 120 feet
C. 240 feet **D.** 260 feet

9 Hudson collects triangular pennants from various colleges. His favorite pennant has an area of 73.5 square inches and a height of 21 inches. What is the base of the pennant?

A. 15.5 inches **B.** 14.0 inches
C. 7.0 inches **D.** 3.5 inches

10 Winthrop builds a toy box in the shape of a rectangular prism for his grandchildren. The length of the base is 4.5 feet, and the width of the base is 2 feet. The volume of the toybox is 33.75 cubic feet. What is the height of the toy box?

A. 3.75 feet **B.** 5.00 feet
C. 7.15 feet **D.** 9.00 feet

11 A rectangular storage bin has a volume of 21,952 cubic centimeters. The length of the bin's base is 28 centimeters. The width of the bin's base is also 28 centimeters. What is the height of the bin?

A. 14 centimeters

B. 28 centimeters

C. 196 centimeters

D. 392 centimeters

12 A foam wedge in the shape of a triangular prism is used to offer support for sitting. The volume of the foam wedge is 4,720 cubic inches. The triangular base has a height of 8 inches and a base of 20 inches. What is the height of the foam wedge?

A. 29.5 inches

B. 59 inches

C. 118 inches

D. 188 inches

13 Genesis is constructing a rectangular garage door. The garage door has an area of 96 square feet and a length of 15 feet. What is the width of the garage door?

A. 6.4 feet

B. 9.8 feet

C. 39.5 feet

D. 79.7 feet

14 Yitty is mowing a triangular field. The field has an area of 17,000 square feet and a base of 200 feet. What is the height of the field?

A. 120 feet

B. 170 feet

C. 340 feet

D. 405 feet

15 Lucien installs a rectangular sandbox. The area of the base of the sandbox is 8.75 square yards, and the length is 2.5 yards. What is the width of the base of the sandbox?

A. 2.25 yards

B. 2.50 yards

C. 3.50 yards

D. 6.25 yards

16 Contractors pour concrete to make a safety ramp in the shape of a triangular prism. The triangular prism has a volume of 900 cubic feet. The triangular base has a height of 12 feet and a base of 5 feet. What is the height of the safety ramp?

A. 12 feet

B. 15 feet

C. 20 feet

D. 30 feet

17 A swimming pool is in the shape of a rectangular prism. It is 25 meters long and 12 meters wide. The volume of the swimming pool is 600 cubic meters. What is the height of the swimming pool?

A. 30.4 meters

B. 16.2 meters

C. 6.0 meters

D. 2.0 meters

18 Heath buys a new cooler that is in the shape of a rectangular prism. The cooler has a volume of 9,792 cubic inches. The length of the cooler is 18 inches, and the width is 17 inches. What is the height of the cooler?

A. 280 inches

B. 140 inches

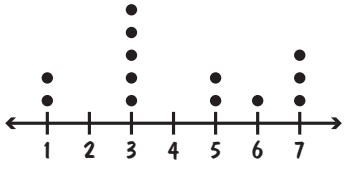
C. 32 inches

D. 16 inches

Practice 45 Analyze Line Plots

S.ID.1

1 Which data set matches the line plot?



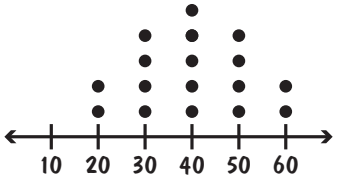
A. 1, 2, 3, 4, 5, 6, 7

B. 1, 1, 3, 3, 5, 5, 6, 6, 7, 7

C. 1, 1, 3, 3, 3, 3, 3, 5, 5, 6, 7, 7, 7

D. 1, 1, 1, 3, 3, 3, 5, 5, 5, 6, 6, 6, 7, 7, 7

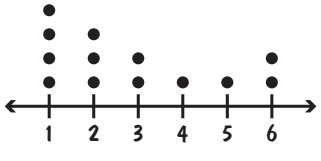
2 Which description applies to the shape of the distribution?



A. outlier **B.** symmetric

C. skewed left **D.** skewed right

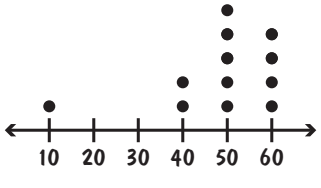
3 What is the center of the distribution?



A. 1 **B.** 2

C. 3 **D.** 4

4 What is the outlier, if any?

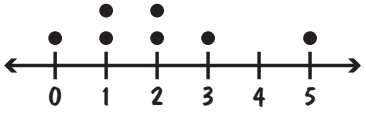


A. 10 **B.** 40

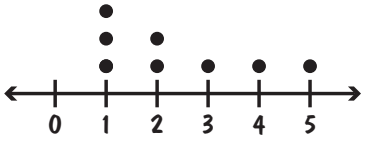
C. 60 **D.** none

5 Which line plot matches the data set {1, 4, 1, 5, 2, 2, 3, 4, 1, 0}?

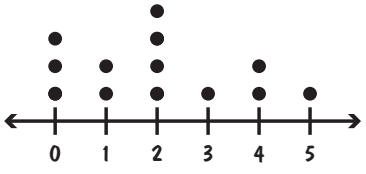
A.



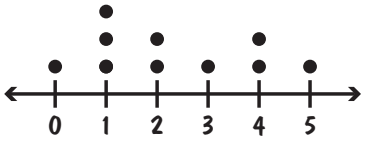
B.



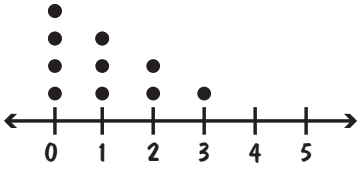
C.



D.



6 Which description matches the line plot?



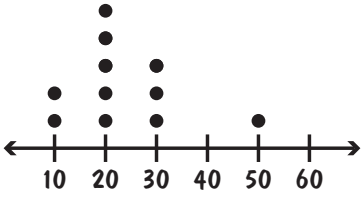
A. The data shape is symmetrical. The median is 2. The data is distributed between 0 and 3, with no outliers. The range is 4.

B. The data shape is bimodal. The median is 1. The data is distributed between 0 and 3, with no outliers. The range is 3.

C. The data shape is skewed left. The median is 1. The data is distributed between 0 and 4, with no outliers. The range is 3.

D. The data shape is skewed right. The median is 1. The data is distributed between 0 and 3, with no outliers. The range is 3.

7 Data was collected by asking 11 people at an accounting firm how many miles they travel to work, rounded to the nearest 10 miles. Which conclusion is supported by the line plot?



A. Most people surveyed travel fewer than 30 miles to work.

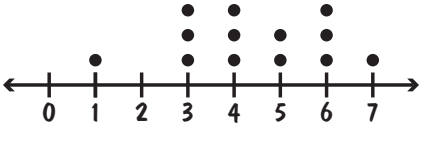
B. Most people surveyed travel more than 40 miles to work.

C. Some people surveyed travel 40 miles to work.

D. Most people surveyed travel 30 miles to work.

Use the information and line plot to answer questions 8 through 10.

Data was collected by asking 13 people how many times they exercise per week.



8 What is the center of the distribution?

A. 3 **B.** 4

C. 5 **D.** 6

9 What conclusion is supported by the line plot?

A. Most people surveyed exercise more than 5 times per week.

B. Most people surveyed exercise less than 3 times per week.

C. Everyone surveyed exercises at least 1 time per week.

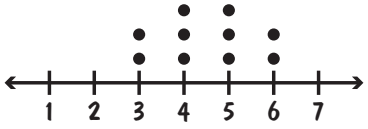
D. No one surveyed exercises every day of the week.

10 What is the outlier, if any?

A. 1 **B.** 2

C. 7 **D.** none

11 Data was collected by asking 10 people how many days they work per week. Which statement does *not* describe the distribution?



A. Half the people work more than 4 days per week.

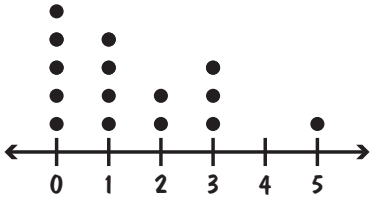
B. The distribution has a range of 3.

C. The distribution is symmetric.

D. The distribution is skewed left.

Use the information and line plot to answer questions 12 through 14.

Data was collected by asking 15 people who visited a doctor's office how many children they have.



12 Which conclusion is supported by the line plot?

A. Most people surveyed have 1 child.

B. No people surveyed have 0 children.

C. Some people surveyed have 4 children.

D. Some people surveyed have 0 children.

13 What is the outlier, if any?

A. 2

B. 4

C. 5

D. none

14 Which description applies to the shape of the distribution?

A. bimodal

B. symmetric

C. skewed left

D. skewed right

Practice 53 Understand Probability

7.SP.5, 7.SP.6

1 What is the probability of an hour having 60 minutes?

A. 0

B. 0.1

C. 0.6

D. 1

2 Which of the following *best* represents the probability of a professional basketball team winning the final game in the playoffs?

A. 0.2

B. 0.3

C. 0.5

D. 0.8

3 Which real-world situation *best* matches a probability of 0.02?

A. the weather being cloudy

B. ice melting on a hot day

C. a new car breaking down on a test drive

D. getting a raise after 3 years of working at a company

4 What is the probability of randomly being selected out of a group of 5 people?

A. 10%

B. 20%

C. 50%

D. 80%

5 Which real-world situation has a probability of 0?

A. seeing a rare eagle

B. getting injured at work

C. earning $1,000,000 in 1 day

D. being in India and Canada at the same time

6 What is the probability, with 1 spin, of getting a number greater than 0 on a spinner with 4 equal sections labeled 1–4?

A. 0

B. 0.5

C. 0.8

D. 1

7 Which of the following *best* represents the probability of a healthy apple tree having more than 1 apple on it during its apple growing season?

A. 0

B. 0.21

C. 0.50

D. 0.96

8 What is the probability of drawing (without looking) a red marble from a bag with 20 red marbles and 30 blue marbles of identical size?

A. 10%

B. 20%

C. 40%

D. 60%

9 Which real-world situation has a probability of 1?

A. receiving a phone call this week

B. a company making a profit this year

C. a team winning a game this season

D. selecting a red or black card out of a 52-card deck

10 What is the probability of randomly selecting a person with brown hair out of a group of 40 people, 30 of whom have brown hair?

A. 0.30

B. 0.40

C. 0.65

D. 0.75

11 Which of the following *best* represents the probability of a person being struck by lightning this year?

A. 0

B. 0.000001

C. 0.50

D. 1

12 What is the probability of selecting a number from 1 to 5 randomly from the numbers 1 to 20?

A. 15%

B. 25%

C. 35%

D. 45%

13 Which real-world situation *best* matches a probability of 0.99?

A. a baby bear's cub being a boy

B. getting sick with the flu this year

C. hearing an ambulance siren in a rural town today

D. at least 1 stock in the Nasdaq increasing in price on Tuesday

14 What is the probability of rolling two 6-sided number cubes and getting a combined result of 14?

A. 0

B. 0.14

C. 0.40

D. 0.66

15 Which of the following *best* represents the probability of a random child growing up to be an astronaut?

A. 0

B. 0.01

C. 0.50

D. 0.99

16 What is the probability of randomly selecting a bass from a pond that has 80 fish, 30 of which are bass?

A. 22.5%

B. 30%

C. 37.5%

D. 45%

17 What is the probability of a mile being less than 10 feet long?

A. 0

B. 0.02

C. 0.10

D. 1

18 Which of the following *best* represents the probability of the air temperature in a city being warmer on a summer day than on a winter day?

A. 0

B. 0.18

C. 0.98

D. 1

19 What is the probability of selecting 1 of 2 sticks and getting the longer or the shorter stick?

A. 0

B. 0.5

C. 0.9

D. 1

20 What is the probability of spinning blue, red, or green on a color spinner with 5 equal sections that are blue, green, red, yellow, and purple?

A. 80%

B. 60%

C. 40%

D. 20%