# STAAR

**State of Texas
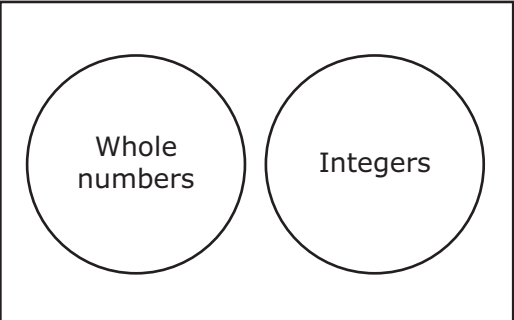Assessments of
Academic Readiness**
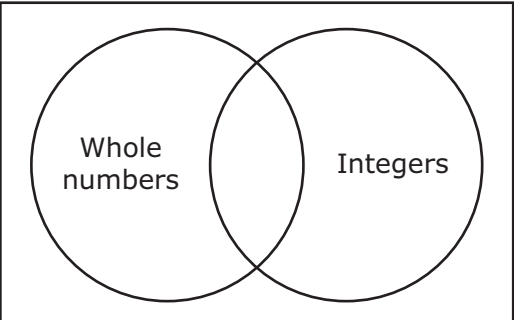
# MATHEMATICS
## Grade 7

**2015 Released Test Questions**

**1**   Which Venn diagram correctly describes the relationship between whole numbers and integers?
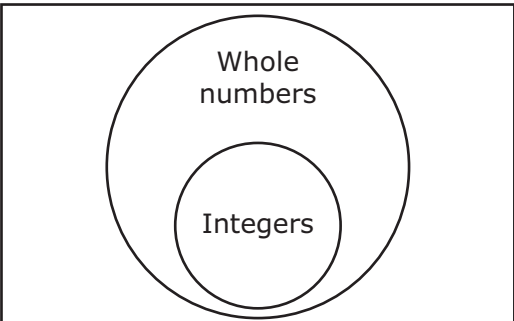
**A**

Whole numbers    Integers

, because whole numbers and integers have no numbers in common

**B**

Whole numbers    Integers
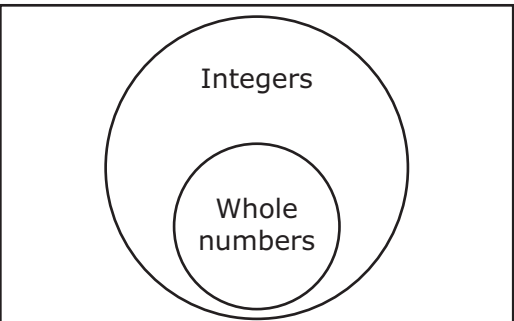
, because some whole numbers are not integers

**C**

Whole numbers

Integers

, because all integers are whole numbers

**D**

Integers

Whole numbers

, because all whole numbers are integers

**2** The table shows the types of movies and the numbers of DVDs rented by customers at a store in one day.

DVD Rentals

| Type of Movie | Number of Rentals |
|---------------|-------------------|
| Drama | 25 |
| Comedy | 36 |
| Family | 52 |
| Sci-Fi | 12 |

Based on the data in the table, what is the probability that a random customer will **not** rent a drama?

**A** $\frac{1}{4}$, because the probability of renting a drama is $\frac{3}{4}$

**B** $\frac{3}{4}$, because the probability of renting a drama is $\frac{1}{4}$

**C** $\frac{4}{5}$, because the probability of renting a drama is $\frac{1}{5}$

**D** $\frac{1}{5}$, because the probability of renting a drama is $\frac{4}{5}$

**3**  Deborah surveyed customers in a restaurant to find out their favorite meal. The results of the survey are shown in the table.

Favorite Meals

| Meal | Number of People |
|------|------------------|
| Hamburger and french fries | 17 |
| Spaghetti | 8 |
| Chili | 12 |
| Vegetarian delight | 3 |

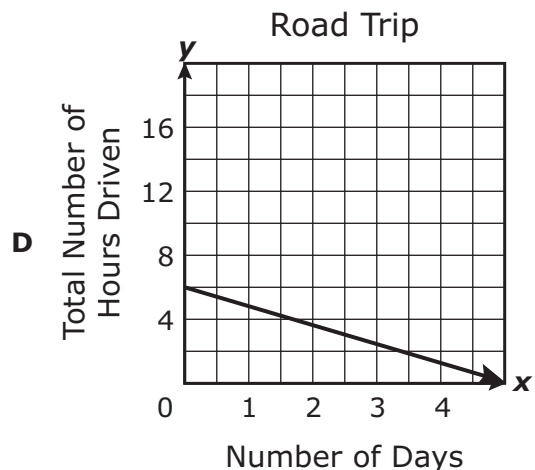One person in the restaurant will be picked at random. Based on the given information, which statement is true?
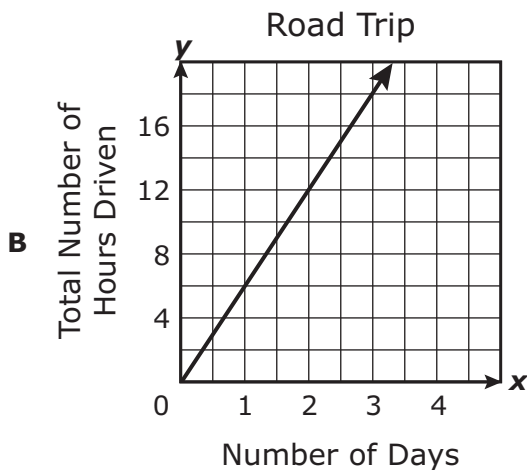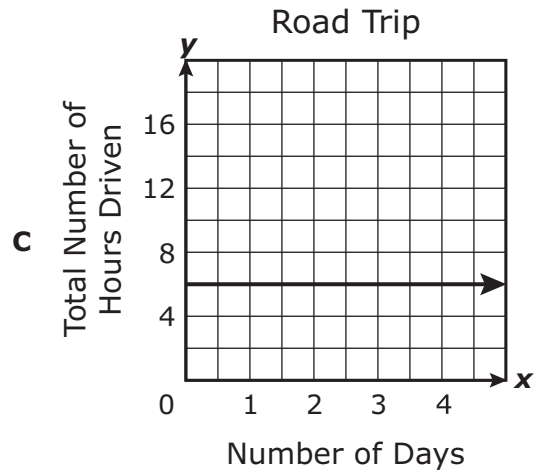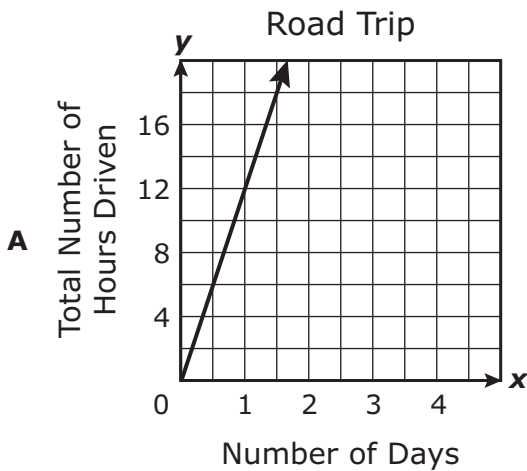
**A**  This person's favorite meal is twice as likely to be hamburger and french fries as it is to be spaghetti.

**B**  This person's favorite meal is four times as likely to be chili as it is to be vegetarian delight.

**C**  This person's favorite meal is more likely to be chili than hamburger and french fries.

**D**  This person's favorite meal is equally likely to be either vegetarian delight or spaghetti.

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**4**  Mildred has a bag of coins. The bag contains 10 dimes, 5 nickels, and 1 penny. She will randomly select 2 coins from the bag one at a time without replacement. What is the probability that Mildred will select a dime first and then a penny?

**A**  $\dfrac{83}{120}$

**B**  $\dfrac{11}{16}$

**C**  $\dfrac{5}{128}$

**D**  $\dfrac{1}{24}$

**5**  The 17 students on the math team want to raise $483.62 to buy practice books. They have already raised $218.25. If each student raises the same amount, how much more money must each student raise?

  **A**  $15.61

  **B**  $12.84

  **C**  $28.45

  **D**  $41.29

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**6**  Frank and his family drove 6 hours every day during a road trip. Which graph best represents $y$, the total number of hours driven in $x$ days?



**A**

Road Trip

Total Number of Hours Driven vs. Number of Days



**C**

Road Trip

Total Number of Hours Driven vs. Number of Days



**B**

Road Trip

Total Number of Hours Driven vs. Number of Days



**D**

Road Trip

Total Number of Hours Driven vs. Number of Days

**7**   The cost of 3 pounds of grapes is $6.57. What is the constant of proportionality that relates the cost in dollars, *y*, to the number of pounds of grapes, *x*?

  **A**  6.57

  **B**  3

  **C**  2.19

  **D**  Not here

**8**   Amanda increased the amount of protein she eats every day from 48 g to 54 g. By what percentage did Amanda increase the amount of protein she eats?
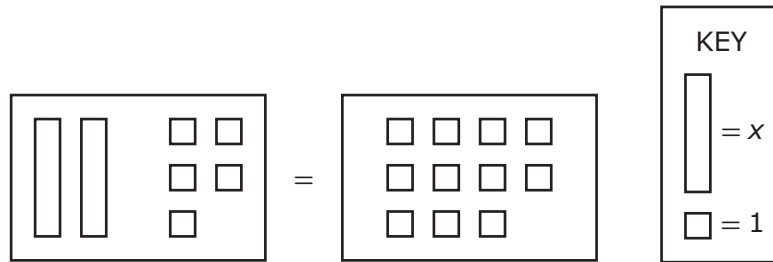
  **A**  11.1%

  **B**  88.9%

  **C**  112.5%

  **D**  12.5%

**9** Which equation represents the relationship between the *x*-values and the *y*-values in the table?

| x | y |
|---|---|
| 0 | 4 |
| 2 | 16 |
| 4 | 28 |
| 6 | 40 |
| 10 | 64 |

**A** $y = 2x + 12$

**B** $y = 4x + 6$

**C** $y = 2x + 4$

**D** $y = 6x + 4$

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**10** Which number line represents the solution to the inequality $-7x - 13 \geq 8$?
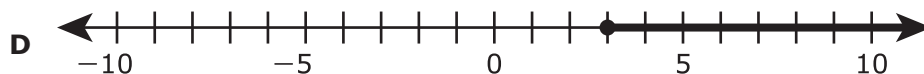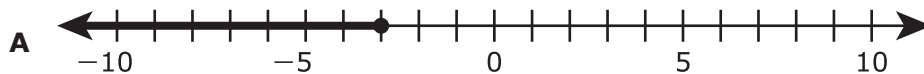
**11**  The model represents an equation.



What value of $x$ makes the equation true?

**A**  3

**B**  8

**C**  6

**D**  4

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**12**  Which equation is true when the value of $x$ is $-12$?

**A**  $\dfrac{1}{2}x + 22 = 20$

**B**  $15 - \dfrac{1}{2}x = 21$

**C**  $11 - 2x = 17$

**D**  $3x - 19 = -17$

**13** Teri ran 8 kilometers. One mile is approximately equal to 1.6 kilometers. Which measurement is closest to the number of miles Teri ran?

**A**  5 mi

**B**  12.8 mi

**C**  6.4 mi

**D**  9.6 mi

**14** Which of these best describes $\pi$?

**A**  The square root of the area of a circle

**B**  The ratio of the radius of a circle to its diameter

**C**  The radius of a circle times 3.14

**D**  The ratio of the circumference of a circle to its diameter

**15**  In the scale used on a blueprint, $\frac{1}{4}$ inch represents 2 feet. On the blueprint what is the length of a room with an actual length of 20 feet?

**A**  10 in.

**B**  5 in.

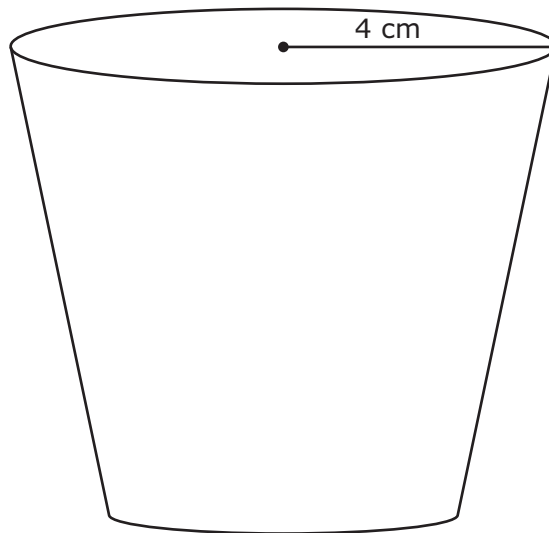**C**  $\frac{1}{2}$ in.

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

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**16**  What is the volume of the triangular prism shown below?
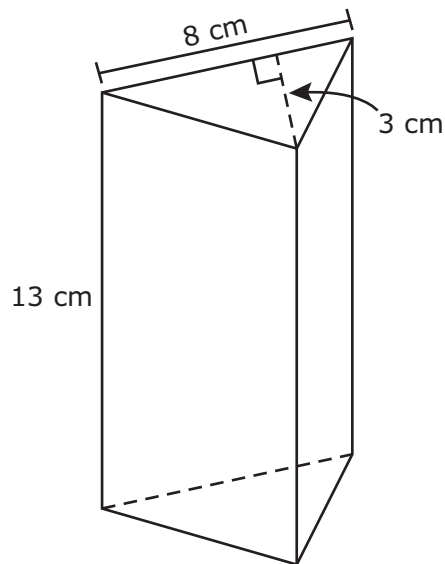


**A**  143 cm$^3$

**B**  312 cm$^3$

**C**  156 cm$^3$

**D**  Not here

**17** The diagram below shows the radius of the circular opening of a drinking cup.



4 cm

Which of the following is closest to the circumference of the opening in centimeters?

**A** 12 cm

**B** 50 cm

**C** 25 cm

**D** 8 cm

**18**  This model of the backboard of a basketball goal is composed of a rectangle and a semicircle. Use the ruler provided to measure the dimensions of the model to the nearest half inch.
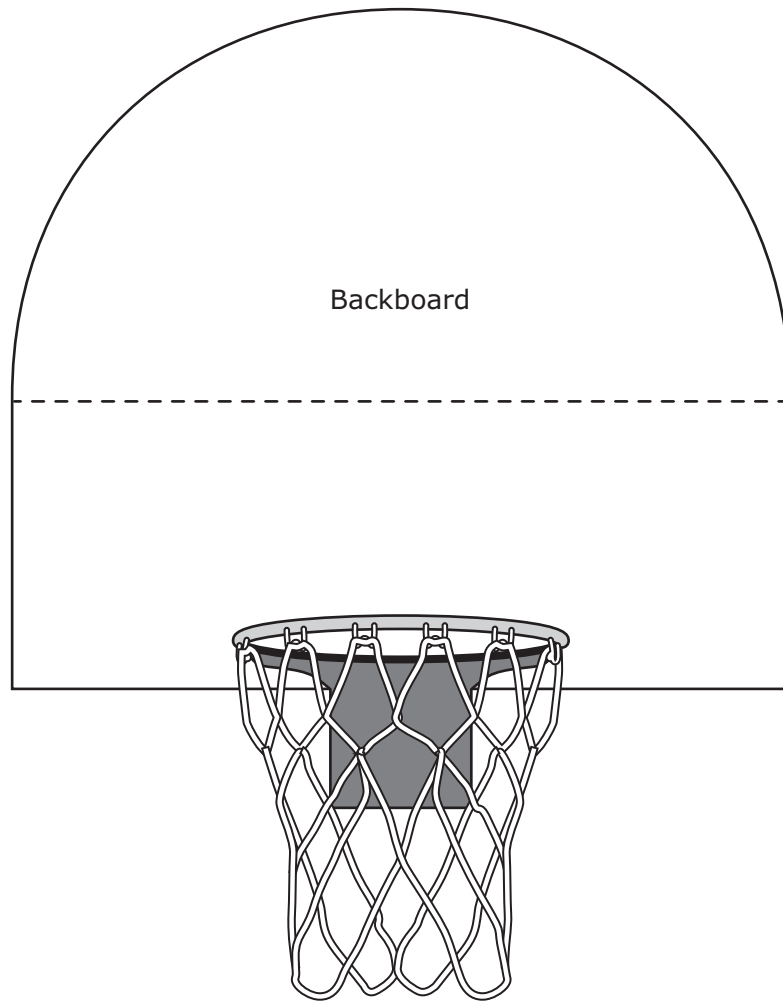
Backboard

Which measurement is closest to the area of the model of the backboard in square inches?

**A**  18.56 in.²

**B**  31.12 in.²

**C**  12.28 in.²
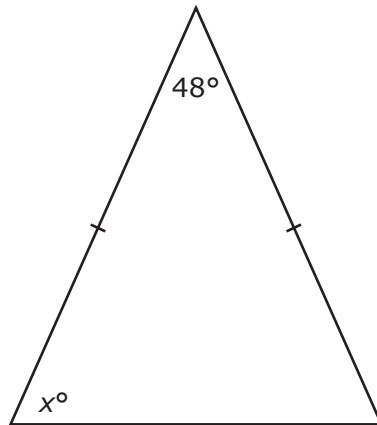
**D**  23.56 in.²

**19** The net of a square pyramid is shown in the diagram.

8 in.

9 in.
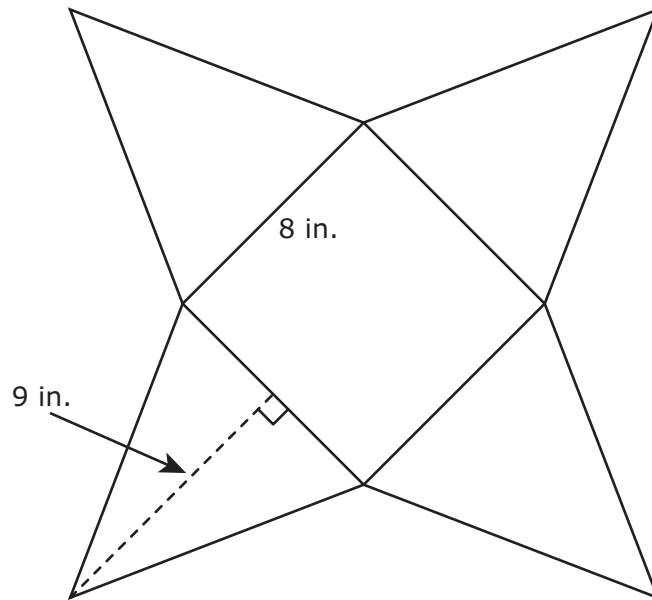
What is the total surface area of the square pyramid in square inches?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.
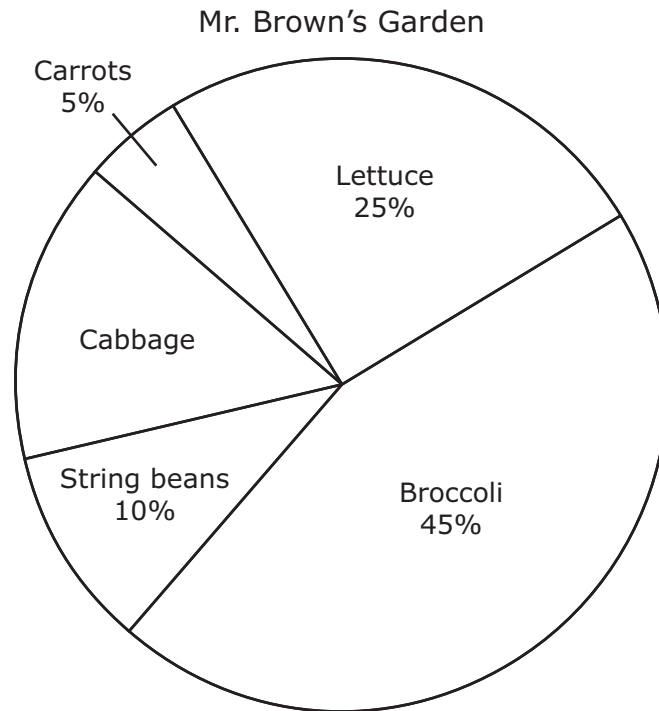
**20** The measures of two angles in a triangle are shown in the diagram.



Which equation can be used to find the value of $x$?

**A** $48 + 2x = 180$

**B** $2(48) + x = 180$

**C** $48 + 2x = 360$

**D** $2(48) + x = 360$

**21** Mr. Brown planted a vegetable garden. The circle graph shows the kinds of vegetables he planted and the percentage of the area of the garden each kind of vegetable occupied.

Mr. Brown's Garden



Mr. Brown's garden has an area of 160 square feet. How many square feet of Mr. Brown's garden is occupied by cabbage?

**A**  136 ft$^2$

**B**  24 ft$^2$

**C**  15 ft$^2$

**D**  145 ft$^2$

**22**  Waldo and Freddy caught fish one weekend. The dot plots show the lengths of the fish they caught.

### Length of Waldo's Fish



Inches

### Length of Freddy's Fish



Inches
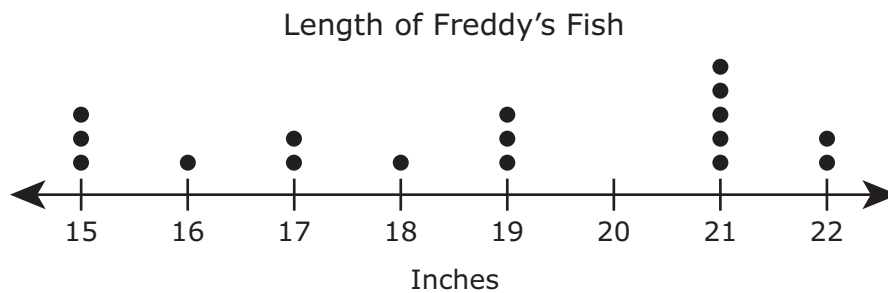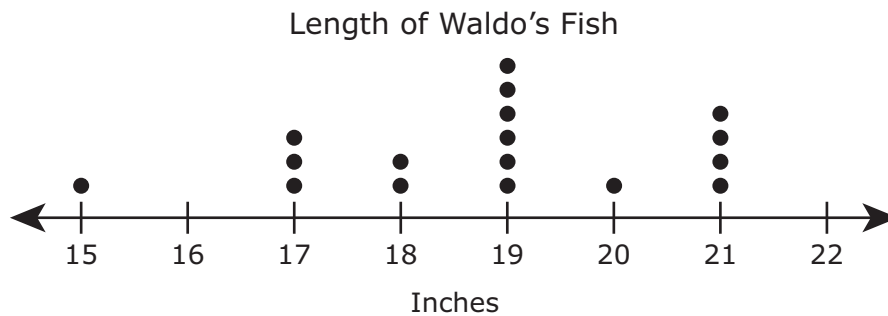
Which statement about the lengths of the fish caught by Waldo and Freddy appears to be true?

**A**  The data for Waldo's fish and the data for Freddy's fish are skewed to the right.

**B**  The median length of the fish caught by Waldo is greater than the median length of the fish caught by Freddy.

**C**  The range of the length of the fish caught by Freddy is greater than the range of the length of the fish caught by Waldo.

**D**  The data for Waldo's fish and the data for Freddy's fish are approximately symmetrical.

**23** Cassie wants to buy a pair of shoes for $26.50 and a shirt for $9.50. If the sales tax rate is 8.25%, what will be the amount of sales tax on Cassie's purchase?

**A** $2.89

**B** $2.97

**C** $3.06

**D** $3.13

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**24** Maria's monthly income is $2,000. The table displays the different categories in Maria's monthly budget and the amount of money she spends in each category.

Monthly Budget

| Category | Rent | Utilities | Cable | Cell phone | Savings | Groceries | Other expenses |
|---|---|---|---|---|---|---|---|
| Amount of Money | $900 | $120 | $80 | $100 | $300 | $320 | $180 |

Which statement is **not** supported by the information in the table?

**A** More than $\frac{1}{2}$ of Maria's monthly income is spent on rent.

**B** Maria puts 15% of her monthly income into savings.

**C** More than $\frac{1}{4}$ of Maria's monthly income is spent on utilities, cable, and groceries.

**D** Maria spends 14% of her monthly income on her cell phone and other expenses.

**25** The table shows Gillian's net worth. Assets are shown as positive numbers, and liabilities are shown as negative numbers.

Net Worth

| Item | Value |
|------|-------|
| House (current value) | $87,900 |
| Checking account | $950 |
| Credit-card debt | −$2,650 |
| Automobile (current value) | $10,300 |
| Student loans | |
| Investments | $5,000 |
| Personal loans | −$1,200 |
| Savings account | $2,450 |

Gillian's net worth is $90,500. Based on the information in the table, what is the amount of money Gillian owes for student loans?

**A** $19,950

**B** $12,250

**C** $16,100

**D** $86,650

**26** A monthly budget with expenses is shown.

MONTHLY BUDGET
for a family of three
in San Antonio, Texas

| | |
|---|---|
| ⌂ Rent | $870 |
| ○ Food | $550 |
| ⋒ Child care | $375 |
| ⌐ Transportation | $480 |
| ♁ Utilities | $400 |
| ◇ Insurance | $235 |
| ⌗ Savings | $400 |
| ◌ Taxes | $290 |
| Monthly total | |

Which equation can be used to determine *y*, the minimum amount of money a family must earn to meet the requirements of this budget for one year?

**A**  $y = 3{,}600 \times 12$

**B**  $y = 3{,}600 \div 7$

**C**  $y = 3{,}600 \times 4$

**D**  $y = 3{,}600 \div 52$

**27** Mr. Juárez opened a savings account with an initial deposit of $560 and will not make any additional deposits or withdrawals. The account earns 1% simple interest. What is the total amount that Mr. Juárez will have in his account at the end of 3 years?

   **A** $168.00

   **B** $56.00

   **C** $565.60

   **D** $576.80

**28** A car dealership offers two types of discounts.

- Discount 1: Take 5% off the original price of a car built last year and then receive a $3,500 rebate.
- Discount 2: Take 10% off the original price of a car built this year and then receive a $1,250 rebate.

A customer is deciding between two cars.

- Car R was built last year and has an original price of $25,340.
- Car S was built this year and has an original price of $22,860.

Based on this information, which statement is true?

   **A** The customer would pay $19,324 for Car S.

   **B** The customer would pay $24,073 for Car R.

   **C** The customer would pay $21,824 for Car S.

   **D** The customer would pay $23,107 for Car R.

| Item Number | Correct Answer | Reporting Category | Readiness or Supporting | Content Student Expectation | Process Student Expectation |
|---|---|---|---|---|---|
| 1 | D | 1 | Supporting | 7.2(A) | 7.1 (B),(E),(G) |
| 2 | C | 1 | Supporting | 7.6(E) | 7.1 (A),(B),(E),(G) |
| 3 | B | 1 | Readiness | 7.6(H) | 7.1 (A),(B),(E),(G) |
| 4 | D | 1 | Readiness | 7.6(I) | 7.1 (A),(B),(F) |
| 5 | A | 2 | Readiness | 7.3(B) | 7.1 (A),(B),(F) |
| 6 | B | 2 | Readiness | 7.4(A) | 7.1 (A),(B),(D),(F) |
| 7 | C | 2 | Supporting | 7.4(C) | 7.1 (A),(B),(C),(F) |
| 8 | D | 2 | Readiness | 7.4(D) | 7.1 (A),(B),(F) |
| 9 | D | 2 | Readiness | 7.7(A) | 7.1 (B),(C),(D),(F) |
| 10 | A | 2 | Supporting | 7.10(B) | 7.1 (B),(D),(F) |
| 11 | A | 2 | Readiness | 7.11(A) | 7.1 (B),(E),(F) |
| 12 | B | 2 | Supporting | 7.11(B) | 7.1 (B),(F) |
| 13 | A | 3 | Supporting | 7.4(E) | 7.1 (A),(B),(F) |
| 14 | D | 3 | Supporting | 7.5(B) | 7.1 (G) |
| 15 | D | 3 | Readiness | 7.5(C) | 7.1 (A),(B),(F) |
| 16 | C | 3 | Readiness | 7.9(A) | 7.1 (B),(C),(E),(F) |
| 17 | C | 3 | Readiness | 7.9(B) | 7.1 (A),(B),(C),(E),(F) |
| 18 | C | 3 | Readiness | 7.9(C) | 7.1 (A),(B),(C),(E),(F) |
| 19 | 208 | 3 | Supporting | 7.9(D) | 7.1 (B),(C),(E),(F) |
| 20 | A | 3 | Supporting | 7.11(C) | 7.1 (B),(E),(F) |
| 21 | B | 4 | Readiness | 7.6(G) | 7.1 (A),(B),(E),(F) |
| 22 | C | 4 | Readiness | 7.12(A) | 7.1 (A),(B),(E),(G) |
| 23 | B | 4 | Supporting | 7.13(A) | 7.1 (A),(B),(F) |
| 24 | A | 4 | Supporting | 7.13(B) | 7.1 (A),(B),(E),(G) |
| 25 | B | 4 | Supporting | 7.13(C) | 7.1 (A),(B),(E),(F) |
| 26 | A | 4 | Supporting | 7.13(D) | 7.1 (A),(B),(E),(F) |
| 27 | D | 4 | Supporting | 7.13(E) | 7.1 (A),(B),(C),(F) |
| 28 | A | 4 | Supporting | 7.13(F) | 7.1 (A),(B),(G) |