Student Name _____

GRADE

8

PRACTICE TEST BOOK

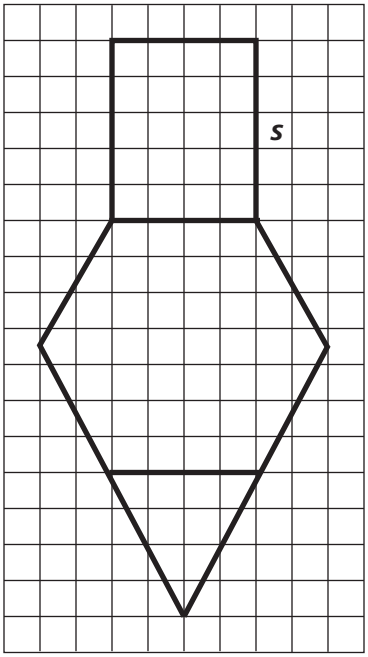
Mississippi Curriculum Test, Second Edition

MCT2

MATHEMATICS

Mark your answers for questions 1–60 on your answer document. Mark only one answer for each question. You may write in your test booklet, but you must mark your answers on your answer document.

1. The following figure is drawn on a grid where the line segments are $\frac{1}{4}$ inch apart.



Which scale factor could be used to enlarge the figure so that the length of side *s* is $5\frac{1}{4}$ inches?

A. 4:21

B. 5:21

C. 21:5

D. 21:4

2. Which of the following is <u>not</u> equivalent to $\left(\sqrt{36}\right)^2$?

F. 6

G. $\sqrt{1,296}$

H. 6^2

J. $\sqrt{36^2}$

3. Lakeisha correctly solved the inequality $7 - 3x < -3(x + 2)$. She determined there are no solutions to the inequality.

Which statement could <u>not</u> be used to justify Lakeisha's conclusion?

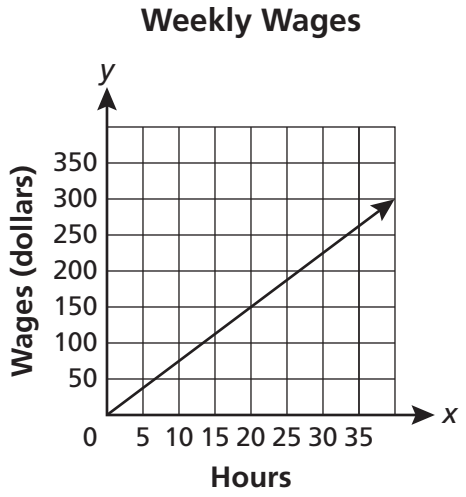
A. When Lakeisha simplifies the inequality, no values satisfy the resulting inequality.

B. When Lakeisha simplifies the inequality, the result is $7 < -6$.

C. When Lakeisha distributes the 3 on the right side of the inequality and moves the variable to the left side, the result is $7 - 6x < 6$.

D. When Lakeisha distributes the -3 on the right side of the inequality, it results in $-3x$, which when moved to the left side cancels out the variable terms.

4. **The following graph represents the weekly wages of an hourly worker.**



Which appears to be the slope of the line in the graph?

F. $\frac{2}{15}$

G. $\frac{3}{4}$

H. $\frac{8}{6}$

J. $\frac{15}{2}$

5. **What is the result of the first step when simplifying $13 - 4(x - 5)$?**

A. $13 - 4x + 20$

B. $13 - 4x - 20$

C. $13 - 4x - 9$

D. $9(x - 5)$

6. **Which number below is an element in the set of irrational numbers?**

$$\sqrt{4},\quad 3.45,\quad -8.7,\quad \sqrt{2}$$

F. $\sqrt{4}$

G. 3.45

H. −8.7

J. $\sqrt{2}$

7. **Which of these is equivalent to the expression below?**

$$5^a \div 5^b$$

A. 5^{a-b}

B. 5^{a+b}

C. $5^{a \div b}$

D. $5^{a \times b}$

8. **Line *t* is a transversal for parallel lines *p* and *q*.**

Which of the following angle pairs are always congruent?

F. Supplementary angles

G. Adjacent angles

H. Corresponding angles

J. Complementary angles

GO ON

9. Melinda had a board that was $72\frac{3}{4}$ inches long. She cut a piece from the board that was $36\frac{3}{4}$ inches long. The blade of the saw she used cut an additional $\frac{1}{8}$ inch from the board. Melinda concluded that the length of the board left was $35\frac{7}{8}$ inches.

Which method did Melinda use to determine the length of the board left?

A. Melinda subtracted $\frac{1}{8}$ from $36\frac{3}{4}$, then subtracted the result from $72\frac{3}{4}$ inches.

B. Melinda subtracted $\frac{1}{8}$ from $35\frac{7}{8}$, then subtracted the result from $72\frac{3}{4}$ inches.

C. Melinda added $\frac{1}{8}$ inch to $35\frac{7}{8}$ inches, then subtracted the result from $72\frac{3}{4}$ inches.

D. Melinda added $\frac{1}{8}$ inch to $36\frac{3}{4}$ inches, then subtracted the result from $72\frac{3}{4}$ inches.

10. Look at the completed function table below.

x	*y*
−8	−6
−6	−3
−4	0
−2	3

Which set of characteristics describes the graph of the line made by using the values in the function table?

F. A slope of $-\frac{3}{2}$ and a *y*-intercept of −4

G. A slope of $-\frac{3}{2}$ and a *y*-intercept of 6

H. A slope of $\frac{3}{2}$ and a *y*-intercept of −4

J. A slope of $\frac{3}{2}$ and a *y*-intercept of 6

11. Which list is ordered from greatest to least?

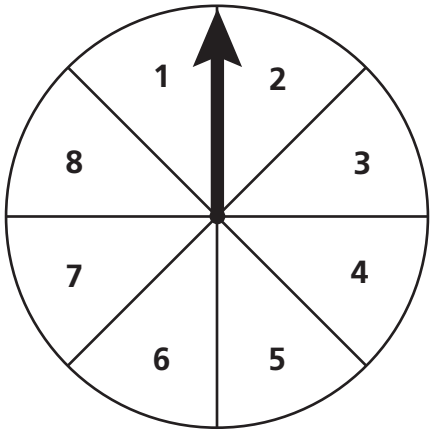
A. $14.5,\ 14\frac{1}{5},\ \frac{14}{5},\ 1.45$

B. $14.5,\ 14\frac{1}{5},\ 1.45,\ \frac{14}{5}$

C. $14\frac{1}{5},\ 14.5,\ \frac{14}{5},\ 1.45$

D. $14\frac{1}{5},\ 14.5,\ 1.45,\ \frac{14}{5}$

12. The spinner below is used on a game.



If the arrow on the spinner is spun twice, what is the probability that the arrow will land on 5 the first spin and on either 3 or 6 on the second spin?

F. $\frac{3}{8}$

G. $\frac{7}{32}$

H. $\frac{1}{8}$

J. $\frac{1}{32}$

13. What are the *x*-intercept and the *y*-intercept of $y = 2x - 4$?

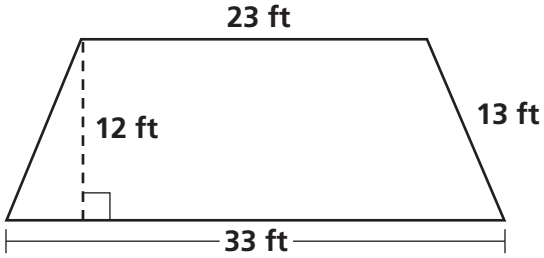
A. (4, 0) and (0, −2)

B. (2, 0) and (0, −4)

C. (−2, 0) and (0, 4)

D. (−4, 0) and (0, 2)

14. Mrs. Brown plans to stain the top of her wooden patio. The patio is shaped like a trapezoid. The dimensions of her patio are pictured below.



What is the area of the top of Mrs. Brown's patio?

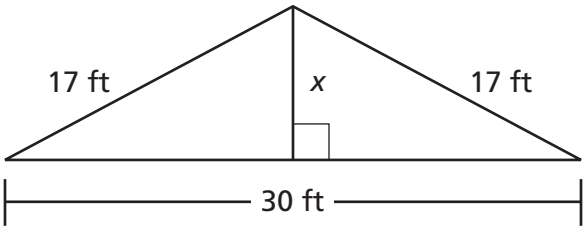
F. 728 ft^2

G. 672 ft^2

H. 364 ft^2

J. 336 ft^2

15. The roof of a patio is in the shape of a triangle.



What is the value of *x*, the distance from the base of the roof to the top of the roof?

A. 2 feet

B. 8 feet

C. 13 feet

D. 22 feet

GO ON

16. The following table shows the prices of six laptop computer models.

Laptop Prices

Laptop Model	Retail Price
PV 8500	$999.99
PV 8200	$899.99
PV 7800	$879.99
PV 7400	$849.99
PV 6900	$849.99
PV 6800	$749.99

Which statistical measurement does not increase when a new laptop model that retails for $1,399.99 is added to the table?

F. Mode

G. Mean

H. Median

J. Range

17. Which expression demonstrates the rule used to simplify $\frac{x^4}{x^{-2}}$?

A. $x^{(4-2)}$

B. $x^{(4--2)}$

C. $x^{(-2-4)}$

D. $x^{(2-4)}$

18. One of Robert's homework problems had the following function table.

x	y
0	4
2	8
4	12
6	16

Robert concluded that the rule for this function table was $y = 2x + 4$.

Which statement best justifies that Robert's conclusion is correct?

F. The x-values are all even numbers and 2 is an even number.

G. The y-intercept of the equation is 4 and the first point is (0, 4).

H. Each x-value put into the equation yields the corresponding y-value.

J. All the x-values are positive, so all the y-values will also be positive.

19. Which expression is equivalent to $2a^2 + 4 - 5a + 3a^2 - 7$?

A. $5a^2 - a - 7$

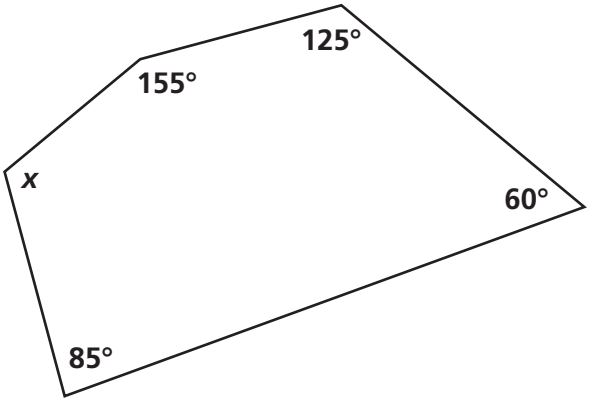
B. $5a^4 - a - 7$

C. $5a^2 - 5a - 3$

D. $5a^4 - 5a - 3$

GO ON

20. Wanda outlined the shape of her school playground, as shown below.



What is the value of *x* in Wanda's outline?

F. 60°

G. 115°

H. 120°

J. 295°

21. Emily's first five test scores were 99, 85, 86, 68, and 98.

What is the minimum score Emily would need on the sixth test to have a mean score of 88?

A. 86

B. 87

C. 88

D. 92

22. Some students at a middle school were asked to name their one favorite sport. The table shows the responses of the first 30 students.

Favorite Sports

Sport	Number of Students
Basketball	7
Football	9
Baseball	3
Soccer	2
Other	9

What is the probability that the next student chosen at random will name basketball or football as their one favorite sport?

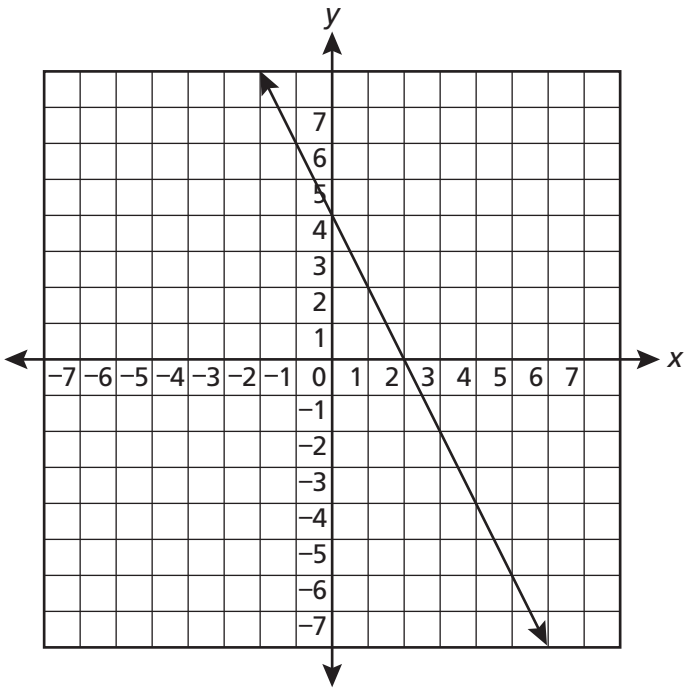
F. $\frac{8}{15}$

G. $\frac{7}{15}$

H. $\frac{2}{5}$

J. $\frac{7}{30}$

23. Larissa incorrectly graphed $2x - y = 4$ on the following coordinate grid.



Which statement could <u>not</u> be used to justify that Larissa's graph is incorrect?

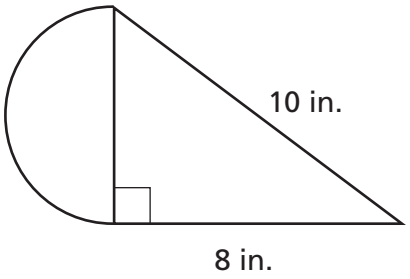
A. The line should cross the y-axis at -4.

B. The intercepts of the line should be $(2, 0)$ and $(0, -4)$.

C. The slope of the line should be -2.

D. The slope of the line should be positive.

24. The following figure shows a semicircle with a diameter that is the leg of a right triangle.



Which measurement is closest to the total perimeter of the composite figure?

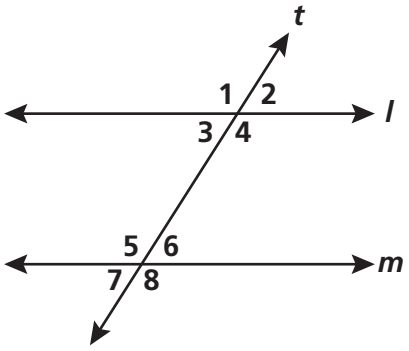
F. 27 inches

G. 33 inches

H. 37 inches

J. 52 inches

25. In the diagram below, line *t* intersects parallel lines *l* and *m*.



Which pair of angles in the diagram are supplementary angles?

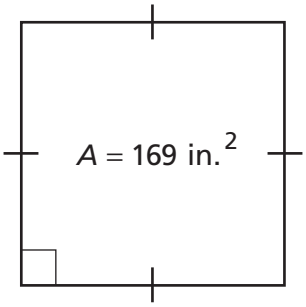
A. $\angle 1$ and $\angle 4$

B. $\angle 1$ and $\angle 5$

C. $\angle 2$ and $\angle 7$

D. $\angle 2$ and $\angle 8$

26. The area of a square is determined using the formula $A = s^2$.



What is the length, in inches, of each side of this square?

F. 13 in.

G. 14 in.

H. 42.25 in.

J. 84.5 in.

27. Cally incorrectly concluded that the solution to the following inequality was $n \geq 20$.

$$-2n + 14 \geq -26$$

Which statement could be used to justify that Cally's solution is incorrect?

A. When Cally divided by -2, the sign of the answer should have been negative.

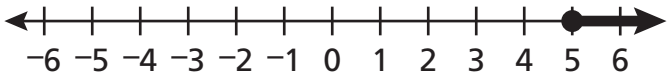
B. When Cally divided by -2, she should have changed the inequality sign to $\leq$.

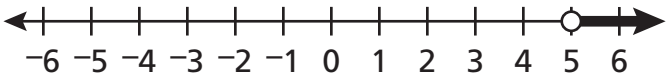
C. When simplifying, Cally should have added 14 to both sides of the inequality.

D. When simplifying, Cally should have divided -12 by -2.

28. Which number line best represents $\frac{x}{5} - 3 \leq -2$?

F.


G.


H.


J.


29. Marge purchased 60 shares of stock at $62.50 per share. There was a 4.5% purchase fee for the stock she bought.

What was the amount of the purchase fee Marge had to pay?

A. $3750.00

B. $1687.50

C. $ 281.25

D. $ 168.75

30. Which equation shows the correct use of the Distributive Property?

F. $-12(2n + 5) = (-12)(2n) + 5$

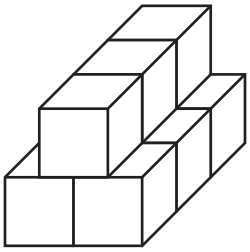
G. $-12 + (2n \cdot 5) = (-12 + 2n)(-12 + 5)$

H. $-12(2n + 5) = (-12)(2n) + (-12)(5)$

J. $-12 + (2n \cdot 5) = (-12)(2n) + (-12)(5)$

GO ON

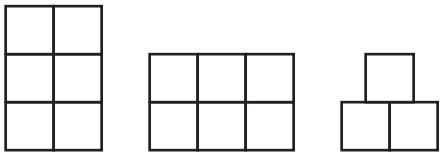
31. A group of 8th graders used building blocks to compose the object below.



Front

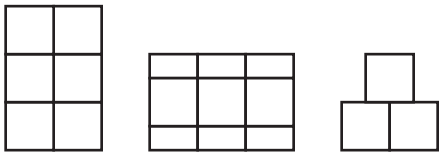
Which set shows the top view, the side view, and the front view of the three-dimensional object?

A.



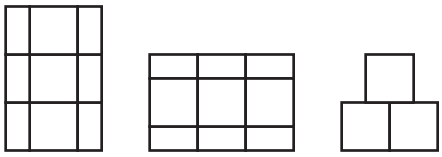
Top View **Side View** **Front View**

C.



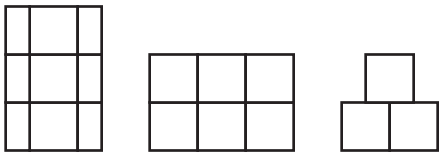
Top View **Side View** **Front View**

B.



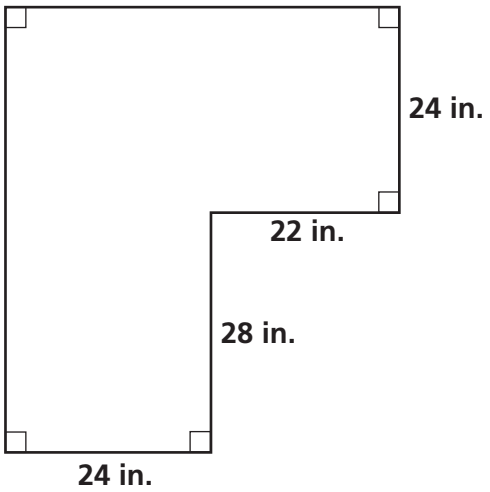
Top View **Side View** **Front View**

D.



Top View **Side View** **Front View**

32. A top-view of Mr. Thompson's office desk is shown below.



What is the area of the top of Mr. Thompson's office desk?

F. 1192 in.^{2}

G. 1200 in.^{2}

H. 1776 in.^{2}

J. 2352 in.^{2}

33. Roxanne's first six test scores were 75, 75, 95, 75, 90, and 60. On her seventh test she received a score of 95.

Which measure of data changed because of Roxanne's seventh test score?

A. Mean

B. Mode

C. Range

D. Median

34. Greg's game has 25 players placed into 5 teams of 5 players each. The following list shows the skill levels of the players:

- **Novice level: 5 players**
- **Intermediate level: 10 players**
- **Master level: 10 players**

Which expression represents the probability that 5 master-level players will be placed into the same team?

F. $\frac{5}{25} \cdot \frac{4}{25} \cdot \frac{3}{25} \cdot \frac{2}{25} \cdot \frac{1}{25}$

G. $\frac{10}{25} \cdot \frac{9}{24} \cdot \frac{8}{23} \cdot \frac{7}{22} \cdot \frac{6}{21}$

H. $\frac{5}{25} \cdot \frac{5}{25} \cdot \frac{5}{25} \cdot \frac{5}{25} \cdot \frac{5}{25}$

J. $\frac{10}{25} \cdot \frac{10}{25} \cdot \frac{10}{25} \cdot \frac{10}{25} \cdot \frac{10}{25}$

35. Which of the following is equivalent to $-2x^2(-3x + 5)$?

A. $6x^3 - 10$

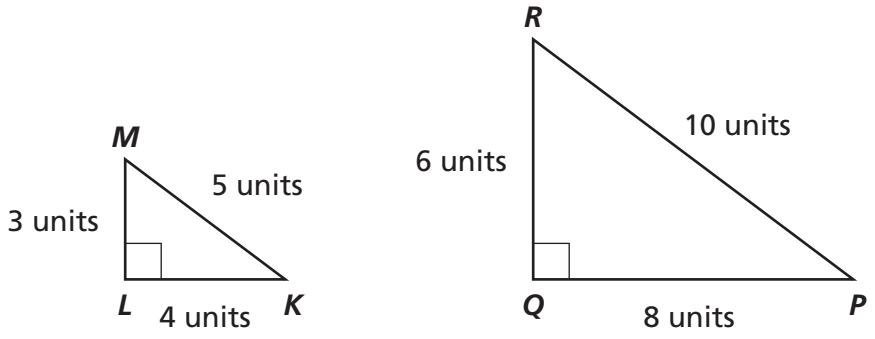
B. $-6x^3 - 10$

C. $6x^3 - 10x^2$

D. $-6x^3 - 10x^2$

GO ON

36. Alejandro drew ΔKLM and ΔPQR. He stated the two triangles are similar.



Which of the following could <u>not</u> be used to justify Alejandro's statement?

F. Both ΔKLM and ΔPQR are right triangles.

G. The corresponding angles of ΔKLM and ΔPQR are congruent.

H. The ratios of the lengths of the corresponding sides of ΔKLM and ΔPQR are equal.

J. The ratios of the lengths of the corresponding sides of ΔKLM and ΔPQR are equal and their corresponding angles are congruent.

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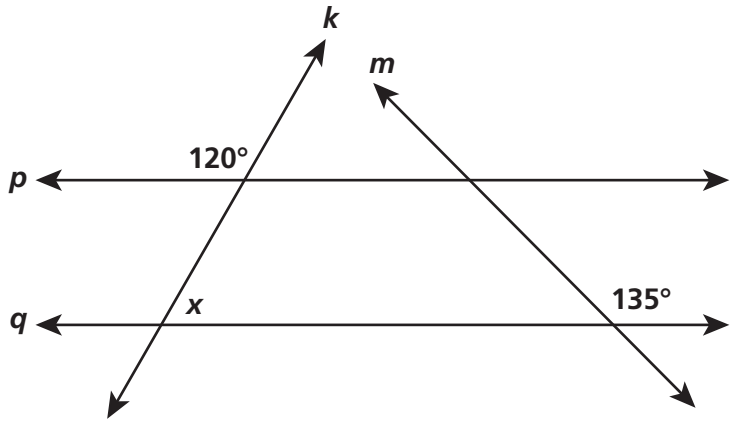
37. In the diagram below, lines *k* and *m* intersect parallel lines *p* and *q*.



What is the value of *x*?

A. 45°

B. 60°

C. 120°

D. 135°

GO ON

38. What is the slope and *y*-intercept of the line represented by the equation $y = 3 - 2x$?

F. The slope is -2, and the *y*-intercept is 3.

G. The slope is 3, and the *y*-intercept is -2.

H. The slope is 2, and the *y*-intercept is -3.

J. The slope is 2, and the *y*-intercept is 3.

39. Cleo made an isosceles triangle from construction paper. The angle between the two congruent sides was 70°. What was the measure of each of the other 2 angles?

A. One is 90° and the other is 20°

B. One is 70° and the other is 40°

C. Both are 55°

D. Both are 20°

40. Mario ordered 16 chains. Half of the chains each measured 2 feet. The rest of the chains each measured 3 feet. The cost for each chain was $1.50 per foot. Mario determined that the total cost of the chains was $60.00.

Which expression could be used to justify that Mario's conclusion is correct?

F. $(1.5)(3) + (1.5)(2)(16)$

G. $(16)(3 + 2)(1.5)$

H. $(8)(3 + 2)(16)$

J. $(8)(3 + 2)(1.5)$

41. Casey's car used 25.82 gallons of fuel to travel 258.2 miles today. She plans to travel 400 miles tomorrow. She calculated that she will need about 40 gallons of fuel but wants to analyze her answer.

Which pair of ratios shows that Casey's calculation is correct?

A. $\frac{258.2}{40}$ and $\frac{20.211}{400}$

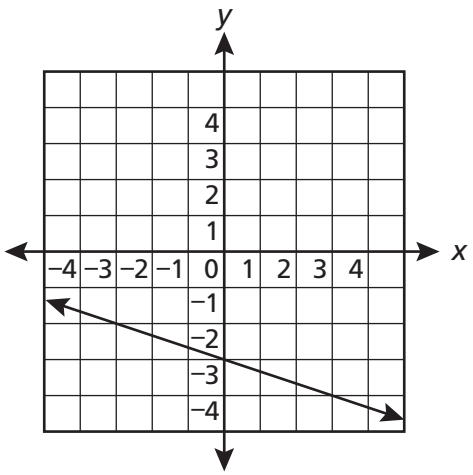
B. $\frac{258.2}{25.82}$ and $\frac{400}{40}$

C. $\frac{40}{400}$ and $\frac{258.2}{25.82}$

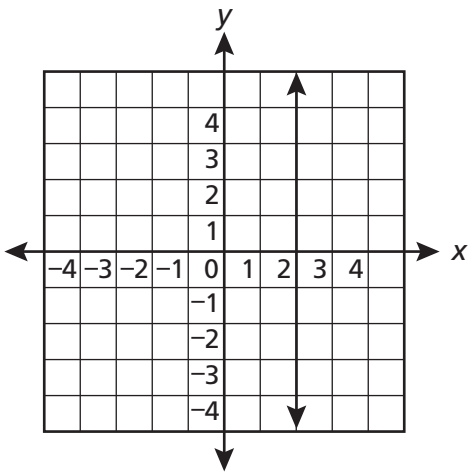
D. $\frac{40}{258.2}$ and $\frac{400}{25.82}$

42. Which of the following graphs has a line that appears to have a slope of 0?

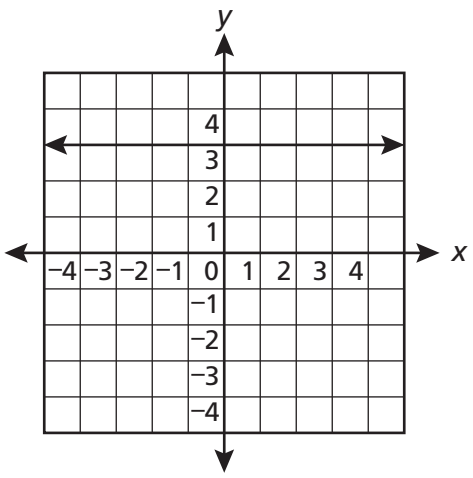
F.



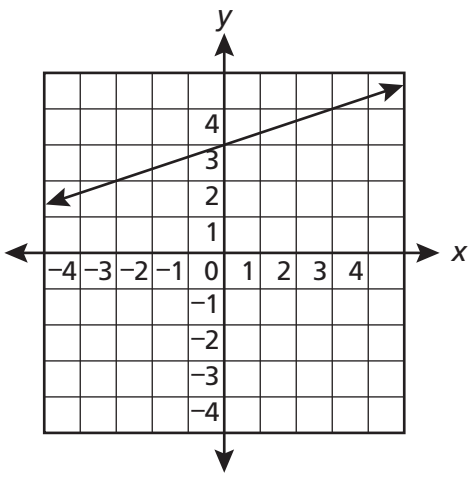
H.



G.



J.



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43. Jane had a rectangular frame 30 inches in length and 24 inches in width. Stan made a similar frame that is smaller in size.

Which of the following could be the dimensions of the frame Stan made?

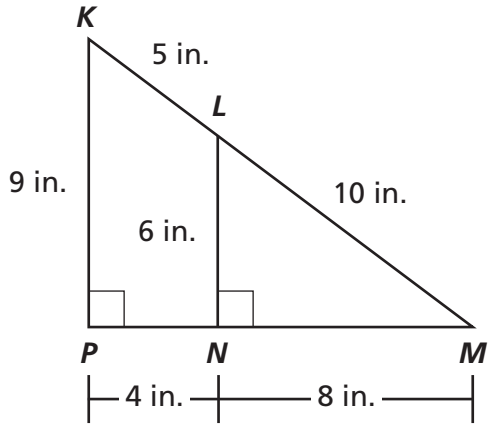
A. Length = 20 inches, width = 25 inches

B. Length = 15 inches, width = 8 inches

C. Length = 24 inches, width = 18 inches

D. Length = 15 inches, width = 12 inches

44. Enrique stated that ΔLMN is similar to ΔKMP in the following figure.



Which of the following could Enrique use to justify his statement that ΔLMN is similar to ΔKMP?

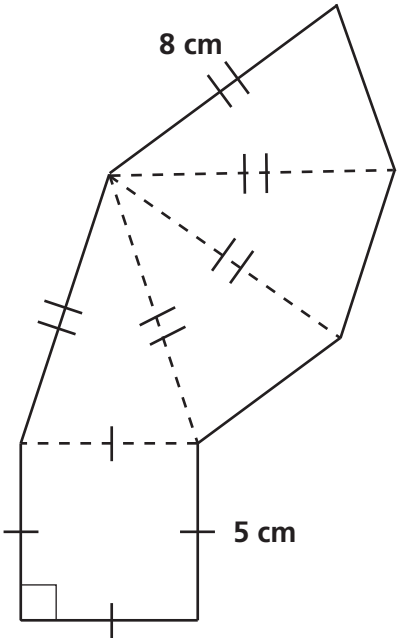
F. ΔLMN and ΔKMP are right triangles and $\angle MPK$ is congruent to $\angle MNL$.

G. ΔLMN is inside of ΔKMP and $\overline{PN}$ is congruent to $\overline{NM}$.

H. $\angle MPK$ is congruent to $\angle NML$ and $\overline{KL}$ is congruent to $\overline{LM}$.

J. $\angle MKP$ is congruent to $\angle MLN$ and $\angle PMK$ is congruent to $\angle NML$.

45. The diagram below forms a geometric solid.



Which statement describes the solid that is constructed when the net is folded along the dashed lines?

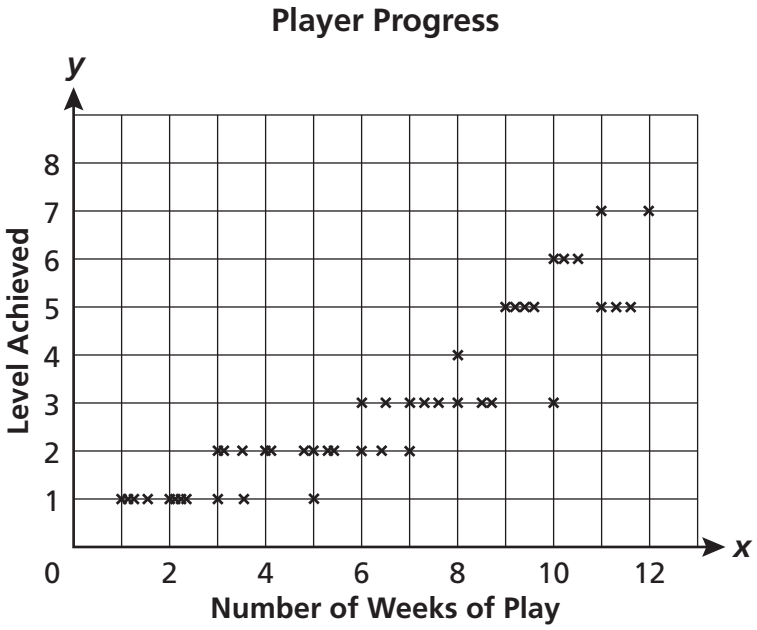
A. The solid is a triangular right prism with a base that is a square.

B. The solid is a tetrahedron with lateral faces that are isosceles triangles.

C. The solid is a square-based pyramid with lateral faces that are isosceles triangles.

D. The solid is a square-based pyramid with lateral faces that are equilateral triangles.

46. The scatter plot shows the levels achieved in a game by new players based upon the number of weeks that they have been playing.



Which of these statements best describes the information in this scatter plot?

F. All players who have been playing for 6 weeks have achieved level 3.

G. All players who have been playing for 10 weeks have achieved level 5.

H. All players at level 3 or higher have been playing for more than 5 weeks.

J. All players at level 5 or higher have been playing for more than 10 weeks.

---

47. What is the value of the expression below?

$$15 - 6 \div 3 \cdot 2 + 7 - 1$$

A. 12

B. 17

C. 20

D. 32

48. Charlie is building a circular brick patio. The diameter of the patio is 10 feet.

Which is closest to the area of the patio? (Use 3.14 for π.)

F. 31 ft^2

G. 63 ft^2

H. 79 ft^2

J. 314 ft^2

GO ON

49. The table shows the most recent scores students received on a test in Ms. Whitley's class.

Student Scores

Score	Number of Students
30	1
40	1
55	2
60	0
65	0
70	4
75	4
80	1
85	2
90	5
95	2
100	3

Ms. Whitley claimed the median of the test scores is the best measure of the performance of the students on this the test.

Which statement justifies Ms. Whitley's conclusion?

A. The median is always the best indicator of academic performance.

B. The median is the best since it keeps the extremely low scores from skewing the overall class performance.

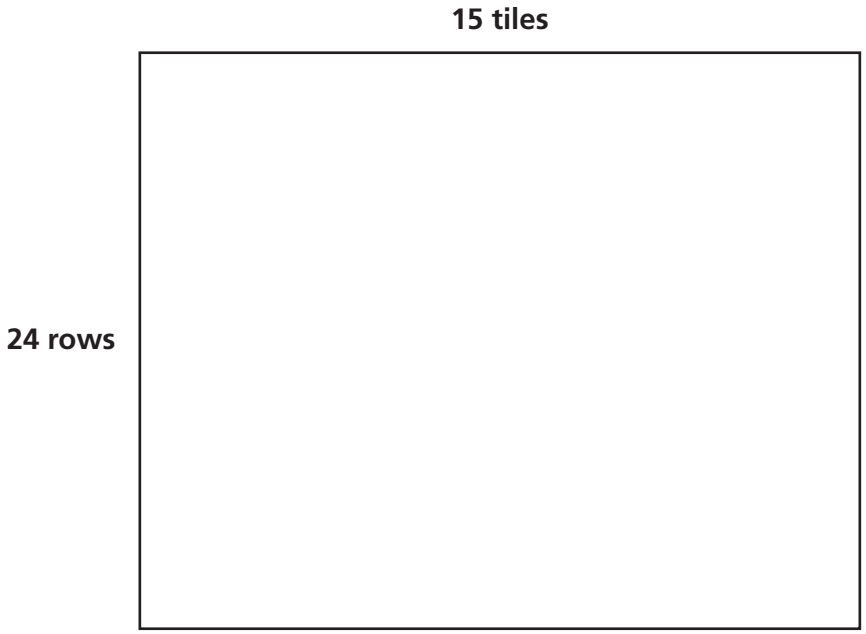
C. The median is best when there are a significant number of students who scored ninety or above.

D. The median is the best since there was a relatively large range of scores.

50. Maisha's patio floor is covered with rectangular tiles that are arranged in 24 identical rows of 15 tiles each.

- **Each tile measures 4 inches wide by 8 inches long.**
- **The patio floor measures 8 feet wide by 10 feet long.**

The following diagram represents Maisha's patio floor.



If Maisha adds 3 more rows of 15 tiles each, what will be the new perimeter of the patio floor?

F. 18 feet

G. 36 feet

H. 38 feet

J. 42 feet

51. Which expression is the Least Common Multiple (LCM) of $6x^3yz^2$ and $4x^2y^4$?

A. $2x^2y$

B. $4x^2yz^2$

C. $12x^3y^4z^2$

D. $24x^3y^4$

52. Which expression has the greatest value?

F. $64 - 32 \div 8 + 8 \cdot 4 - 2$

G. $64 - 32 \div 8 + 8 \cdot (4 - 2)$

H. $64 - 32 \div (8 + 8) \cdot 4 - 2$

J. $(64 - 32) \div 8 + 8 \cdot 4 - 2$

53. Which statement about the length of the hypotenuse of a right triangle whose legs are 7.5 inches and 8.5 inches is true?

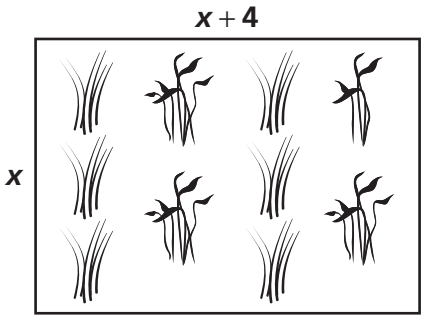
A. The hypotenuse is between 8 and 9 inches.

B. The hypotenuse is between 9 and 10 inches.

C. The hypotenuse is between 10 and 11 inches.

D. The hypotenuse is between 11 and 12 inches.

54. Ivan placed a fence around his rectangular vegetable garden. The perimeter of the garden was 48 feet. The equation $2x + 2(x + 4) = 48$ can be used to determine the dimensions of the garden.



What is the width, *x*, of Ivan's garden?

F. 10 feet

G. 11 feet

H. 14 feet

J. 22 feet

55. Which of the following statements describes the graph of the parabola with the equation $y = -3x^2$?

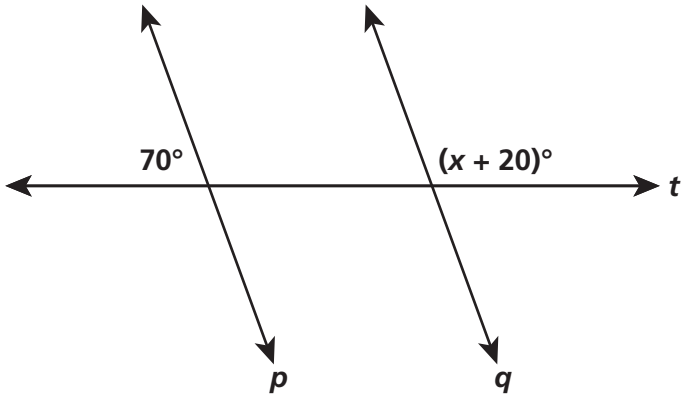
A. The graph opens upward, and the vertex is (0, 0).

B. The graph opens upward, and the vertex is (0, −3).

C. The graph opens downward, and the vertex is (0, 0).

D. The graph opens downward, and the vertex is (0, −3).

56. In the diagram below, lines *p* and *q* are parallel, and line *t* is the transversal.



What is the value of *x*?

F. 50

G. 70

H. 90

J. 110

57. What is the value of the following expression when $x = 4$ and $y = 5$?

$$7xy - 2y^2$$

A. 40

B. 90

C. 120

D. 130

58. Which set consists only of irrational numbers and integers?

F. $\{4, \pi, -2, 0, \sqrt{2}\}$

G. $\left\{-4, \pi, 0, 2, -\frac{1}{2}\right\}$

H. $\{2, \sqrt{2}, 1, -0.5, \pi\}$

J. $\left\{-2, \sqrt{2}, -1, 4, \frac{1}{2}\right\}$

59. The table shows the points that the three highest-scoring students made during four basketball games. The student with the highest mean score wins an award.

Basketball Scores

Game	Clarisse's Scores	Jade's Scores	Monique's Scores
First game	25	16	17
Second game	12	15	13
Third game	19	20	21
Fourth game	15	18	19

Monique concluded that she will win the award.

Which statement could be used to justify that Monique's conclusion is not correct?

A. Clarisse scored higher than Monique on the first game.

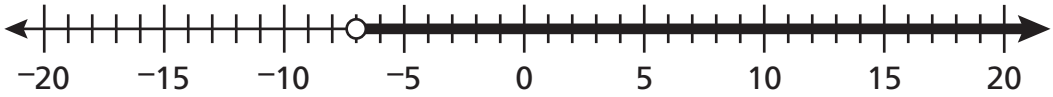
B. Jade scored higher than Monique on the second game.

C. Jade's mean score was higher than Monique's mean score.

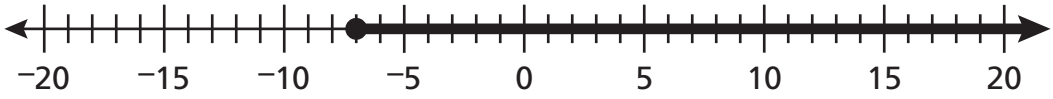
D. Clarisse's mean score was higher than both Jade's mean score and Monique's mean score.

60. Which number line best represents $-7 \leq x$?

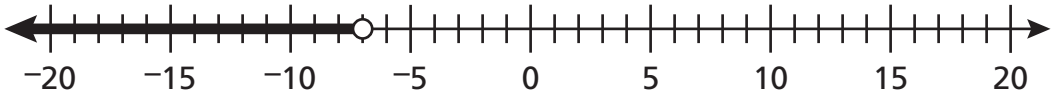
F.



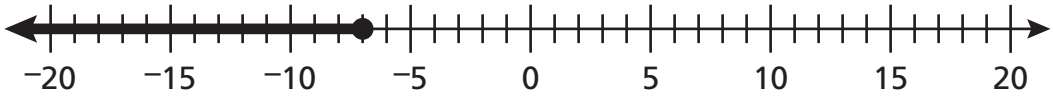
G.



H.



J.



BE SURE YOU HAVE MARKED ALL YOUR ANSWERS
ON THE ANSWER DOCUMENT.

STOP

Grade 8 Math Practice Test 2 Key

Item Sequence	Answer Key	Competency	Objective	Framework DOK	Item PLD	Item DOK
1	C	4	b	3	Proficient	2
2	F	1	g	2	Proficient	2
3	C	2	c	2	Advanced	3
4	J	2	f	2	Proficient	2
5	A	2	b	1	Proficient	1
6	J	1	a	1	Proficient	1
7	A	1	f	1	Basic	1
8	H	3	a	1	Basic	1
9	D	1	b	2	Advanced	3
10	J	2	i	2	Proficient	2
11	A	1	a	1	Proficient	1
12	J	5	c	3	Proficient	3
13	B	2	g	1	Proficient	1
14	J	4	c	1	Basic	1
15	B	3	c	3	Proficient	2
16	F	5	a	2	Proficient	2
17	B	1	e	2	Proficient	2
18	H	2	e	2	Advanced	3
19	C	2	a	1	Basic	1
20	G	3	b	1	Proficient	1
21	D	5	a	2	Proficient	2
22	F	5	c	3	Proficient	2
23	C	2	e	2	Advanced	3
24	F	4	a	2	Proficient	2
25	D	3	a	1	Proficient	1
26	F	1	g	2	Proficient	1
27	B	2	c	2	Advanced	3
28	J	2	d	1	Proficient	1
29	D	1	b	2	Proficient	2
30	H	2	b	1	Proficient	1
31	D	3	e	2	Proficient	2
32	H	4	c	1	Basic	1
33	A	5	b	2	Proficient	2
34	G	5	c	3	Proficient	3
35	C	2	h	1	Proficient	1
36	F	3	d	3	Advanced	3
37	B	3	b	1	Proficient	1
38	F	2	g	1	Proficient	1
39	C	3	b	1	Proficient	1
40	J	1	b	2	Advanced	3
41	B	4	b	3	Proficient	3
42	G	2	f	2	Proficient	1
43	D	3	d	3	Proficient	2
44	J	3	d	3	Advanced	3
45	C	3	e	2	Proficient	2
46	H	5	d	3	Proficient	3
47	B	1	d	2	Basic	1
48	H	4	c	1	Basic	1
49	B	5	b	2	Advanced	3
50	H	4	a	2	Proficient	2
51	C	1	c	2	Proficient	2
52	F	1	d	2	Basic	1
53	D	3	c	3	Proficient	2
54	F	2	c	2	Basic	2
55	C	2	i	2	Proficient	2
56	H	3	b	1	Proficient	1
57	B	2	a	1	Proficient	1
58	F	1	a	1	Proficient	1
59	D	5	a	2	Advanced	2
60	G	2	d	1	Proficient	1