ISASP IOWA STATEWIDE ASSESSMENT of STUDENT PROGRESS

Using Your District ISASP Data

Mathematics – Review Items

Prepared by Iowa Testing Programs

Review of ISASP Mathematics Items

The percent of Iowa students that answered the item correctly

The non-keyed responses that attracted Iowa students

Grade 5 Review Items						
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA051603 MA1805007	0.471	NBT	2	5.NBT.B.7	B	A, C and D
MA051603 MA1805006	0.458	MD	2	5.MD.C.5	A	D, C and B
MA1805041	0.452	NBT	3	5.NBT.B.7	D	A, B and C

Depth of Knowledge Level

Next Steps

1. Review the item-level information available for each released item.
2. Consider the difficulty of the item and the attractiveness of the distractors.
3. Review the items for consistency with priority standards and instruction in your district.
4. Discuss connections to future learning goals.

Grade 3 Review Items						
Item ID	Difficulty	Domain	DOK	Standard	Key	Primary Distractor(s)
MA031502 MA1803007	0.509	OA	1	3.OA.A.2	D	A
MA1803046	0.499	OA	2	3.OA.A.4	C	A
MA031501 MA1803004	0.466	MD	2	3.MD.A.2	D	A
MA1803057	0.433	OA	3	3.OA.D.9	B	A
MA1803021	0.415	MD	3	3.MD.A.2	D	A
MA1803042	0.401	NF	2	3.NF.A.3	D	A
MA031501 MA1803002	0.398	NBT	2	3.NBT.A.3	D	A and B

MA031502

Use the following information to answer the questions in the set.

Lila went shopping for school supplies with her father. Lila bought 4 boxes of pencils. Each box contained 8 pencils. Lila also bought 35 stickers to give to her friends.

MA1803007

Lila gave all of the stickers she bought to her 5 friends. She gave each friend the same number of stickers. Which expression shows how many stickers she gave to each friend?

A. 5×35

B. $5 \div 35$

C. $35 - 5$

D. $35 \div 5$

When $n = 5$, which number sentence is true?

A. $10 \div n = 5$

B. $16 \div n = 4$

C. $25 \div n = 5$

D. $48 \div n = 6$

Use the following information to answer the questions in the set.

Hayley counted all of the baskets of fruit at a fruit stand. The graph below shows the number of baskets of each kind of fruit.

Baskets of Fruit

Cherries	🪣 🪣 🪣
Apricots	🪣 🪣
Strawberries	🪣 🪣 🪣 🪣 🪣 🪣 🪣 🪣
Peaches	🪣 🪣 🪣 🪣
Blueberries	🪣 🪣 🪣 🪣 🪣 🪣
Pears	🪣

Each 🪣 stands for 3 baskets.

MA1803004

Each basket of pears weighed 2 kilograms. How many kilograms of pears were there altogether at the fruit stand?

A. 2

B. 3

C. 5

D. 6

At a grocery store, each box has the same number of juice pouches in it. The table below shows how many juice pouches are in different numbers of boxes.
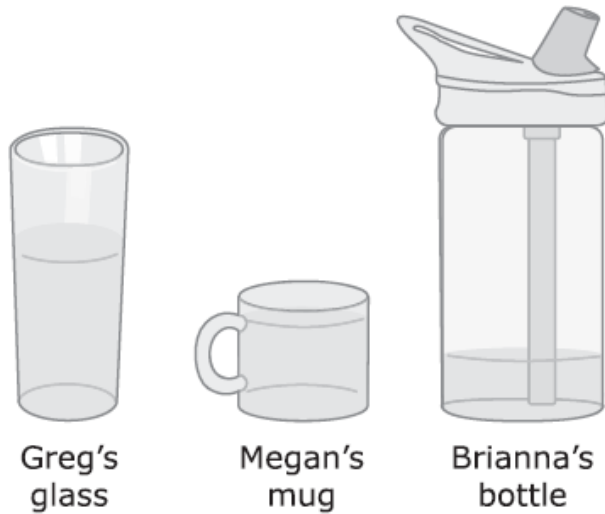
Number of boxes	3	7	9
Number of pouches	18	?	54

Mr. Carson bought 7 boxes at the grocery store. How many juice pouches did he buy?

A. 36

B. 42

C. 48

D. 72

Mr. Benson had a pitcher containing 1 liter of lemonade. He poured $\frac{1}{3}$ of the lemonade into each of the containers shown below.

Greg's glass   Megan's mug   Brianna's bottle

Which container, if any, has the most lemonade in it?

F. Greg's glass

G. Megan's mug

H. Brianna's bottle

J. All of the containers have the same amount of lemonade.

Isaiah had a rectangle with 6 equal parts. He shaded 3 of them. Which fractions does Isaiah's rectangle show are equal?

Isaiah's rectangle

A. $\frac{1}{6} = \frac{1}{3}$

B. $\frac{1}{6} = \frac{1}{2}$

C. $\frac{3}{6} = \frac{1}{3}$

D. $\frac{3}{6} = \frac{1}{2}$

Use the following information to answer the questions in the set.

Hayley counted all of the baskets of fruit at a fruit stand. The graph below shows the number of baskets of each kind of fruit.

Baskets of Fruit

Cherries	🧺 🧺 🧺
Apricots	🧺 🧺
Strawberries	🧺 🧺 🧺 🧺 🧺 🧺 🧺 🧺
Peaches	🧺 🧺 🧺 🧺
Blueberries	🧺 🧺 🧺 🧺 🧺 🧺
Pears	🧺

Each 🧺 stands for 3 baskets.

MA1803002

There were 50 cherries in each basket. How many cherries were there altogether in the baskets of cherries?

F. 110

G. 140

H. 300

J. 450

Grade 4 Review Items						
Item ID	Difficulty	Domain	DOK	Standard	Key	Primary Distractor(s)
MA1804015	0.621	G	2	4.G.A.2	D	A
MA1804052	0.617	OA	3	4.OA.A.3	A	D
MA1804010	0.598	G	1	4.G.A.1	**B**	A
MA1804033	0.588	NBT	2	4.NBT.B.5	D	B
MA041601 MA1804001	0.575	MD	2	4.MD.A.2	B	D
MA41303 MA1804008	0.562	MD	2	4.MD.A.1	C	D
MA1804021	0.561	MD	2	4.MD.A.3	B	A
MA1804051	0.559	OA	2	4.OA.A.2	C	A
MA041601 MA1804002	0.548	OA	3	4.OA.A.3	B	A, C, and D

Every shape below could be called a _____.
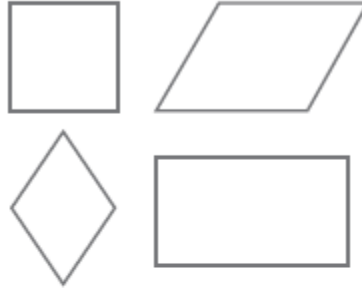
F. square

G. rhombus

H. rectangle

J. parallelogram

All 18 players on Jonah's team were put into 3 groups of equal size for practices. On Saturday, 2 players in Jonah's group missed practice. How many players in Jonah's group were at practice on Saturday?

A. 4

B. 5

C. 6

D. 13

In which trapezoid are the <u>dashed</u> sides parallel?

F.

G.

H.

J.

Aubrey created the area model shown below to find the product of 86 and 78. What number should Aubrey put in place of x ?

	80	6
70	5,600	420
8	x	48

A. 420

B. 480

C. 560

D. 640

Use the following information to answer the questions in the set.

A club at Evan's school sells supplies from 7:00 a.m. to 8:15 a.m. each day. The poster below shows the prices of some of the supplies they sell.

Pencil	Glue	Scissors
14¢	50¢	80¢

MA1804001

For how many total minutes does the club sell supplies each day?

F. 45

G. 75

H. 85

J. 115

Use the following information to answer the questions in the set.

The table below shows the average weights and lengths of some adult male sea animals.

Adult Male Sea Animals

Animal	Average Weight	Average Length
Humpback Whale	25 tons	44 feet
Sea Lion	1 ton	10 feet
Bottle-nosed Dolphin	?	9 feet
Great White Shark	5,000 pounds	15 feet

1 ton = 2,000 pounds
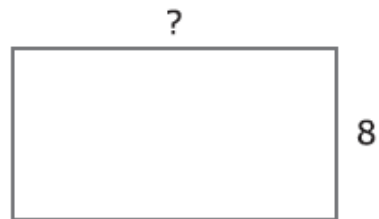
MA1804008

What is the average length of a great white shark in <u>inches</u>?

A. 45

B. 170

C. 180

D. 315

The auditorium floor will be covered with 120 square yards of carpet. The rectangular floor has a width of 8 yards, as shown below.

?

8

What is the length, in yards, of the auditorium floor?

F. 12

G. 15

H. 52

J. 112

Mr. Antonin's classroom has 28 desks in 4 rows. Each row has the same number of desks. In which equation does the $\triangle$ represent the number of desks in each row, and what the value of the $\triangle$ is?

A. $4 + \triangle = 28$; $\triangle = 24$

B. $4 + \triangle = 28$; $\triangle = 32$

C. $4 \times \triangle = 28$; $\triangle = 7$

D. $4 \times \triangle = 28$; $\triangle = 24$

Use the following information to answer the questions in the set.

A club at Evan's school sells supplies from 7:00 a.m. to 8:15 a.m. each day. The poster below shows the prices of some of the supplies they sell.

Pencil	Glue	Scissors
14¢	50¢	80¢

MA1804002

Evan bought 1 bottle of glue with a one-dollar bill. What is the greatest number of pencils he could buy with the change?

A. 2

B. 3

C. 4

D. 5

Grade 5 Review Items						
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA051603 MA1805007	0.471	NBT	2	5.NBT.B.7	B	A, C and D
MA051603 MA1805006	0.458	MD	2	5.MD.C.5	A	D, C and B
MA1805041	0.452	NBT	3	5.NBT.B.7	D	A, B and C
MA1805024	0.45	MD	1	5.MD.C.3	D	B
MA051706 MA1805009	0.431	MD	2	5.MD.B.2	C	B
MA051706 MA1805010	0.392	MD	3	5.MD.A.1	C	B
MA1805060	0.395	OA	3	5.OA.A.2	A	B
MA1805065	0.31	OA	3	5.OA.B.3	A	B and C
MA1805050	0.3	NF	3	5.NF.B.4	D	A and B

MA051603

Use the following information to answer the questions in the set.

Anthony spent $1\frac{3}{4}$ hours packing boxes into crates. Each box was a cube with sides 4 inches long, as shown below, that weighed between 1.2 pounds and 1.3 pounds.

4 inches
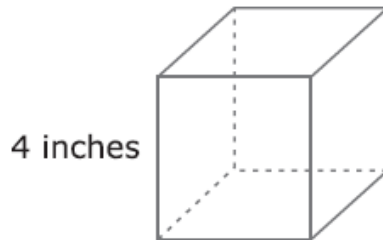
MA1805007

The weight, in pounds, of 4 boxes would be closest to which value?

F. 4

G. 5

H. 6

J. 8

Use the following information to answer the questions in the set.

Anthony spent $1\frac{3}{4}$ hours packing boxes into crates. Each box was a cube with sides 4 inches long, as shown below, that weighed between 1.2 pounds and 1.3 pounds.
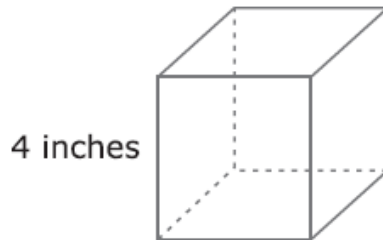
4 inches

MA1805006

Which expression represents the volume, in cubic inches, of each box?

A. $4 \times 4 \times 4$

B. $6 \times (4 + 4)$

C. $6 \times (4 + 4 + 4 + 4)$

D. $4 + 4 + 4 + 4 + 4 + 4$

Which expression has the same value as $60.72 \div 1.32$?

A. $0.6072 \div 132$

B. $6.072 \div 132$

C. $607.2 \div 132$

D. $6,072 \div 132$

Which cube is a unit cube with a volume of 1 cubic unit?
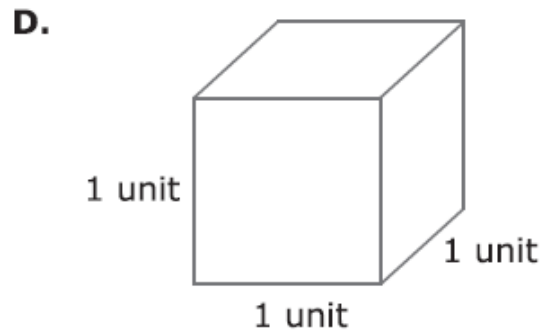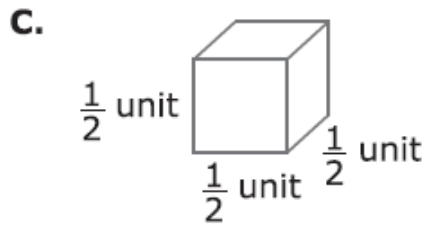
A.

$\frac{1}{4}$ unit

$\frac{1}{4}$ unit $\frac{1}{4}$ unit

B.

$\frac{1}{3}$ unit

$\frac{1}{3}$ unit $\frac{1}{3}$ unit

C.

$\frac{1}{2}$ unit

$\frac{1}{2}$ unit $\frac{1}{2}$ unit

D.

1 unit

1 unit 1 unit

Use the following information to answer the questions in the set.

Starting at one corner, Saralyn planted marigolds along the border of a square garden every 8 inches. As Saralyn dug the holes for the marigolds, she found bugs. The lengths of the bugs are shown in the line plot below.

MA1805009

In one hole, Saralyn found a worm that was 2 times as long as the recorded length of the longest bug. How many inches long was the worm?

F. $1\frac{3}{4}$

G. $2\frac{3}{4}$

H. $3\frac{1}{2}$

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

MA051706

Use the following information to answer the questions in the set.

Starting at one corner, Saralyn planted marigolds along the border of a square garden every 8 inches. As Saralyn dug the holes for the marigolds, she found bugs. The lengths of the bugs are shown in the line plot below.
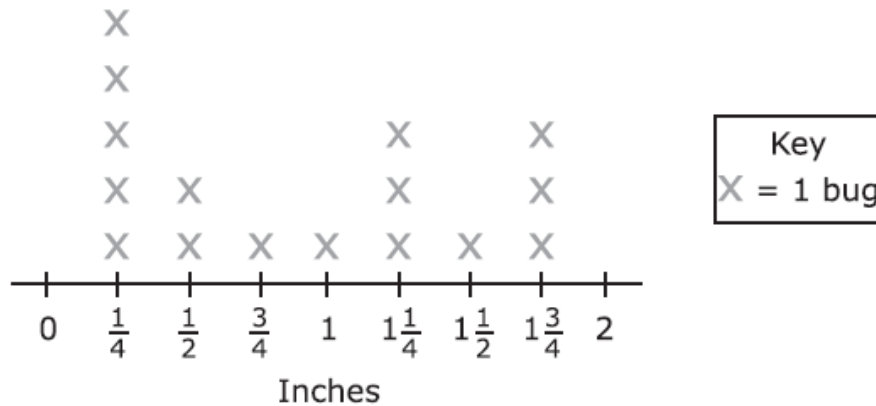
MA1805010

Each border of the garden is 10 feet long. How many marigolds did Saralyn plant along the entire border of the garden?

A. 5

B. 12

C. 60

D. 150

After a play, an actor received 5 bouquets of 12 roses each and 3 bouquets of 8 carnations each. The actor divided the flowers evenly among 4 vases. Which expression represents the number of flowers put into each vase?

F. $\dfrac{5 \times 12 + 3 \times 8}{4}$

G. $\dfrac{(5+12) \times (3+8)}{4}$

H. $5 \times 12 + \dfrac{3 \times 8}{4}$

J. $(5 + 12) \times \dfrac{3 + 8}{4}$

The rules for two patterns are below.

Pattern M: The 1st term is 0. Add 2.
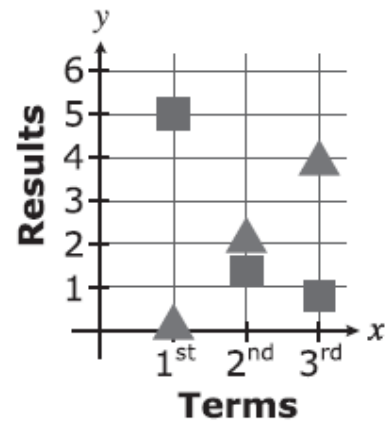
Pattern N: The 1st term is 5. Multiply by $\frac{1}{2}$.

In the graphs, the triangles represent the terms of Pattern M, and the squares represent the terms of Pattern N. Which graph is correct?

A.

B.

C.

D.
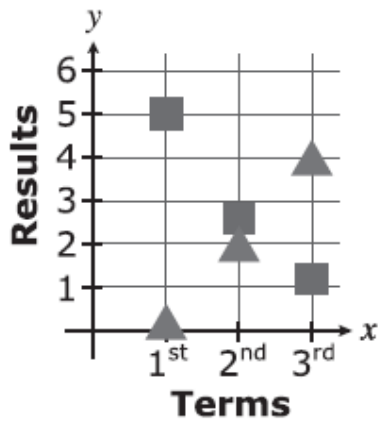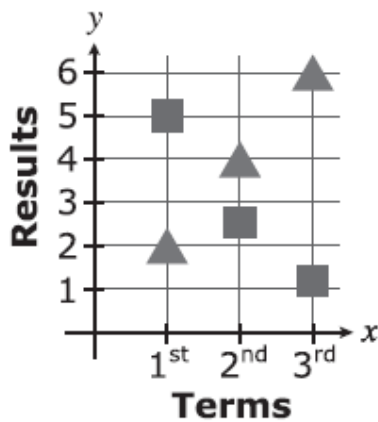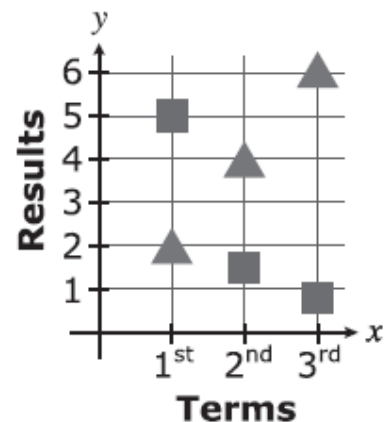
Which number should replace the ☐ to make the number sentence true?

$$\square \times \frac{4}{9} = 4$$

A. 1

B. $\frac{9}{4}$

C. 4

D. 9

Grade 6 Review Items						
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA061602 MA1816072	0.48	SP	2	6.SP.B.4	D	B
MA1816029	0.455	G	3	6.G.A.2	C	B
MA1816021	0.424	EE	2	6.EE.B.7	A	B and C
MA1816063	0.42	SP	1	6.SP.B.5	C	A, B, and D
MA061604 MA1816002	0.386	EE	2	6.EE.C.9	A	B, C and D
MA1816026	0.366	G	3	6.G.A.1	B	A, C and D
MA1816015	0.359	EE	2	6.EE.A.4	B	A
MA1816030	0.335	G	2	6.G.A.2	A	B and D
MA061602 MA1816074	0.324	SP	3	6.SP.B.5	C	A, B and D
MA1816012	0.323	EE	2	6.EE.A.3	B	A, C and D
MA061604 MA1816003	0.266	RP	3	6.RP.A.3	C	A

Use the following information to answer the questions in the set.

The histogram below shows the number of points scored by the winning team in several middle school basketball games.
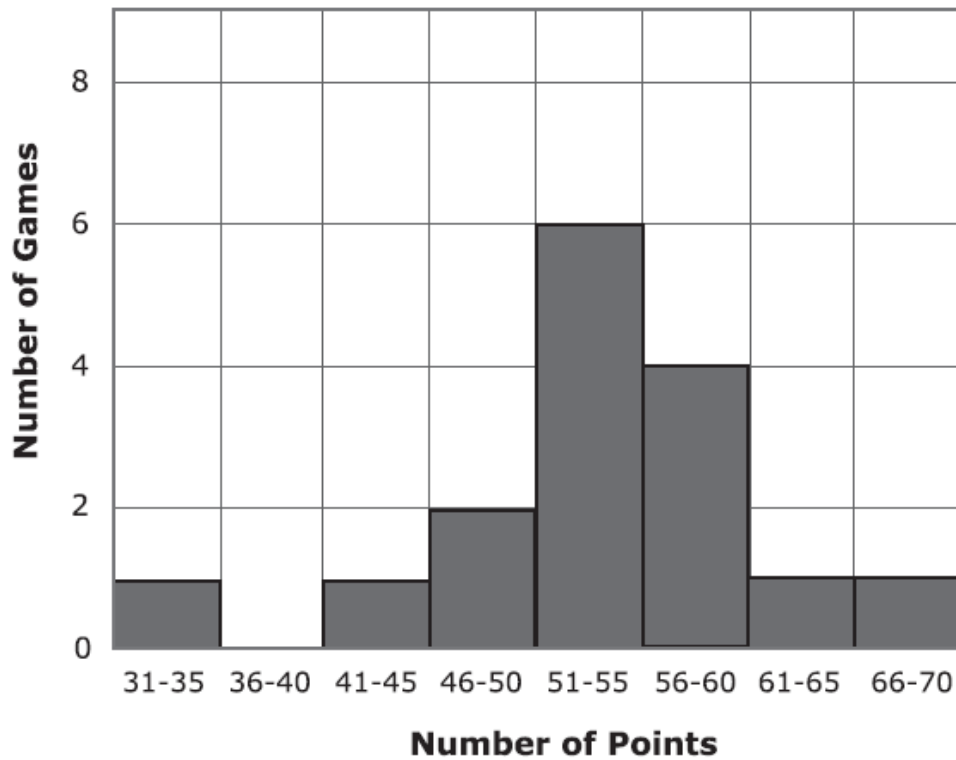
MA1816072

What is the total number of games for which the histogram shows the number of points scored by the winning team?

A. 4

B. 7

C. 13

D. 16

A canister for storing flour is in the shape of a right rectangular prism with dimensions of 8 inches by 6 inches by 8.5 inches. A cup of flour measures 14.4 cubic inches. Which value is closest to the number of cups of flour the canister can hold?

F. 8

G. 17

H. 28

J. 37

Coach Watson will bring 15 tennis balls per player to practice. Which equation represents the relationship between the number of players, p, and the number of tennis balls, t, Coach Watson will bring to practice?

F. $t = 15p$

G. $t = p + 15$

H. $p = 15t$

J. $p = t + 15$

The list below shows the age of each member of the Clay family. What is the range of their ages?

3, 5, 9, 13, 37, 40

F. 11

G. 18

H. 37

J. 40

Use the following information to answer the questions in the set.

Jake and Chris took part in a fitness walk. The graph below shows the relationship between the number of hours and number of miles they walked.
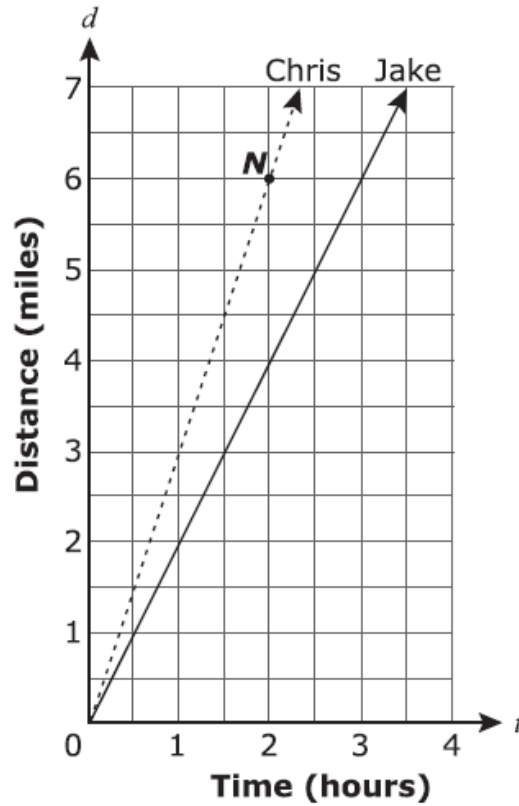
MA1816002

Which equation models Jake's walk?

F. $d = 2t$

G. $d = \frac{1}{2}t$

H. $d = t + 1$

J. $d = t + 2$

MA1816026

The design for a patio is shown below, with lengths given in feet. The shaded region will be covered with stones that each cover 1 square foot. What is the total number of stones needed to cover the shaded region of the patio?
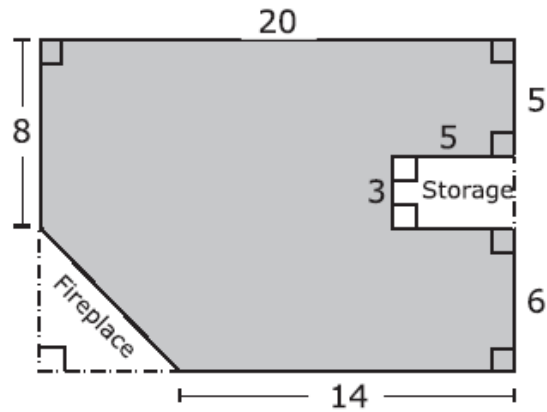
A. 229

B. 247

C. 265

D. 280

Which expression is equivalent to $(x \cdot x) - (y + y + y)$?

F. $x^2 - y^3$

G. $x^2 - 3y$

H. $2x^2 - y^3$

J. $2x - 3y$

Ms. Hayden is mailing a box that is $\frac{1}{2}$ foot wide, $\frac{5}{8}$ foot long, and $\frac{3}{4}$ foot tall. What is the volume of the box in cubic feet?

A. $\frac{15}{64}$

B. $\frac{9}{14}$

C. $1\frac{7}{8}$

D. 15

Use the following information to answer the questions in the set.

The histogram below shows the number of points scored by the winning team in several middle school basketball games.
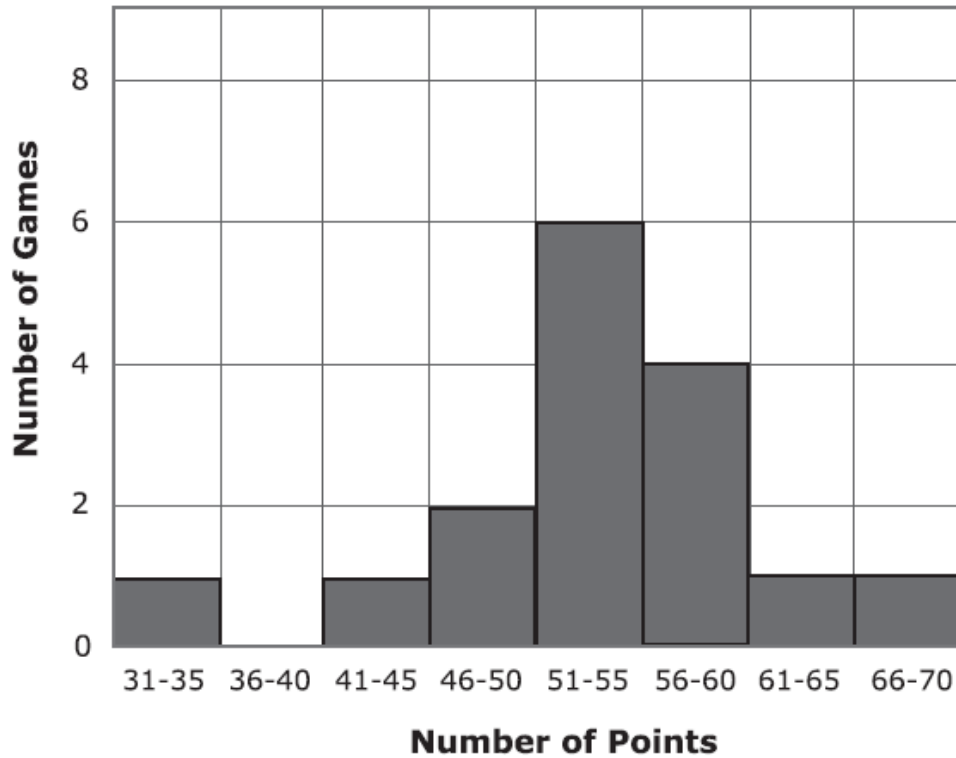
The number of games in which the winning team scored exactly 54 points must be _____.

A. at least 1

B. at least 6

C. at most 6

D. exactly 6

Which numbers could replace the ☐ and the △ in the equation below?

$$6x + 30 = \boxed{}(x + △)$$

F. ☐ = 5; △ = 6

G. ☐ = 6; △ = 5

H. ☐ = 2; △ = 15

J. ☐ = 6; △ = 30

Use the following information to answer the questions in the set.

Jake and Chris took part in a fitness walk. The graph below shows the relationship between the number of hours and number of miles they walked.
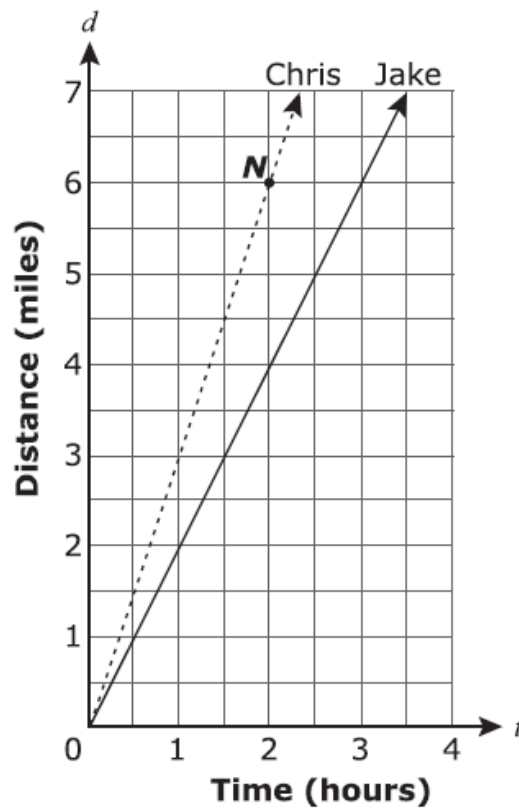
MA1816003

When Chris walks, he takes an average of 2,000 steps per mile. Which value is closest to the number of steps Chris took in the first 30 minutes of the fitness walk?

A. 500

B. 2,000

C. 3,000

D. 60,000

Grade 7 Review Items						
Item ID	Difficulty	Domain	DOK	Standard	Key	Primary Distractor(s)
MA1807031	0.451	G	2	7.G.B.6	C	D
MA1807015	0.433	EE	2	7.EE.B.4	C	A and B
MA1807042	0.428	NS	3	7.NS.A.2	C	B
MA1807009	0.427	EE	2	7.EE.B.3	B	A and D
MA1807026	0.420	G	1	7.G.B.4	A	B
MA1807030	0.417	G	1	7.G.B.5	B	A and C
MA1807041	0.393	NS	1	7.NS.A.2	D	A, B and C
MA1807027	0.380	G	1	7.G.B.4	B	A and C
MA1807044	0.376	NS	2	7.NS.A.3	B	A and C
MA1807076	0.355	G	2	7.G.A.2	B	A and D

The surface area of the cube shown below is 48 square meters. What is the area, in square meters, of *EFGH* ?

A. 4

B. 7

C. 8

D. 12
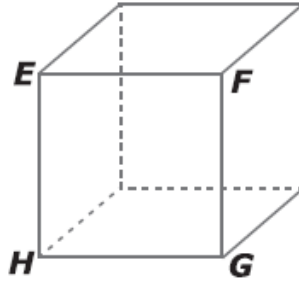
Mr. James has a goal to sell at least 18 computers each week. So far this week, Mr. James has sold 10 computers. Choose a symbol to put in the ☐ to create an inequality that represents all the possible numbers, n, of additional computers Mr. James could sell this week to meet his goal.

$$10 + n \;\boxed{}\; 18$$

F. $\leq$

G. $<$

H. $\geq$

J. $>$

The location of *n* is shown on the number line below. Which point could represent the location of n^2 ?


```
       P         n   Q           R              S
    ───●───┼─────●───●───────┼───────●──────────┼──●──
          −1                 0                   1
```
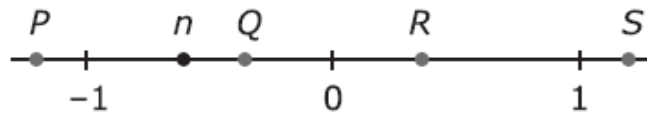
F. *P*

G. *Q*

H. *R*

J. *S*

MA1807009

Ms. Riley is traveling a total distance of 200 miles. She has already traveled 40% of that distance. How many miles does she have left to go?

F. 80

G. 120

H. 140

J. 160

A pool cover for a circular swimming pool has a diameter of 15 feet. Which value is closest to the area, in square feet, of the pool cover?

A. 176.625

B. 706.5

C. 2,218.41

D. 2,826

Angles *W* and *Z* are complementary. What is the sum of the measures of ∠*W* and ∠*Z* ?

F. 45°

G. 90°

H. 180°

J. 360°

What is the value of the expression below?

$$-\frac{4}{3}\left(-\frac{1}{8}\right)$$

A. $-\frac{35}{24}$

B. $-\frac{1}{6}$

C. $\frac{5}{11}$

D. $\frac{1}{6}$

A circle has a radius of 12 centimeters. Which expression gives the circumference of the circle, in centimeters?

A. $\pi(12)$

B. $2\pi(12)$

C. $\pi\left(12^2\right)$

D. $2\pi\left(12^2\right)$

Lucas has frosted $\frac{2}{3}$ of a cake using $\frac{1}{2}$ of a container of frosting. What fraction of the container does Lucas need to frost the rest of the cake?

F. $\frac{1}{6}$

G. $\frac{1}{4}$

H. $\frac{1}{3}$

J. $\frac{1}{2}$

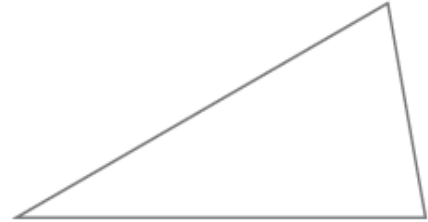Which triangle has angles measuring 20°, 50°, and 110° ?

A.

B.

C.

D.

				Grade 8 Review Items		
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA081601 MA1808003	0.425	EE	2	8.EE.B.5	A	C
MA1808054	0.384	G	2	8.G.B.8	B	A
MA1808064	0.368	NS	1	8.NS.A.1	D	A, B and C
MA1808039	0.364	F	3	8.F.B.4	B	C
MA1808044	0.363	G	2	8.G.A.3	A	B and C
MA1808060	0.358	NS	3	8.NS.A.1	A	B
MA1808050	0.352	G	3	8.G.A.5	C	B
MA1808057	0.317	G	2	8.G.C.9	C	A and B
MA1808038	0.307	F	3	8.F.B.4	A	B and C
MA1808070	0.289	SP	3	8.SP.A.3	A	B and C
MA1808034	0.247	F	3	8.F.A.2	A	B, C and D

MA081601

Use the following information to answer the questions in the set.

The student council sells popcorn at basketball games. Attendance at the games and the number of bags of popcorn sold is recorded in the scatter plot below. A line of best fit models the relationship between the attendance, x, and the number of bags sold, y.
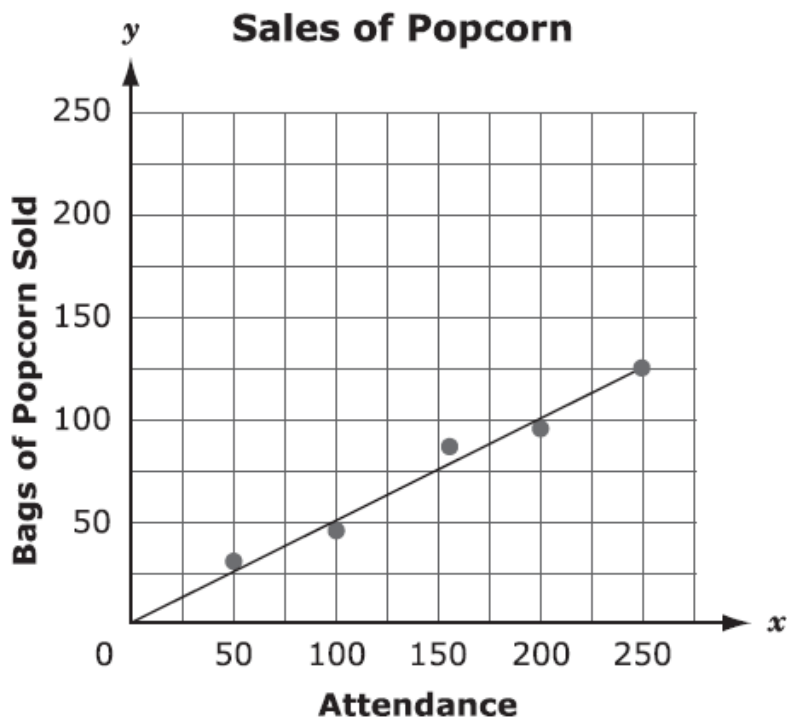
MA1808003
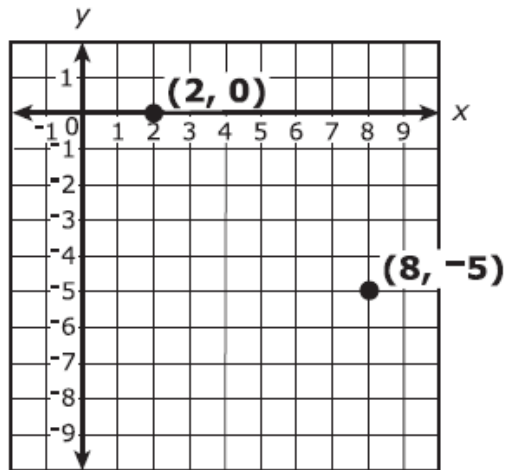
Based on the scatter plot, which value is the best approximation for the unit rate of number of bags of popcorn sold per person in attendance at the games?

F. 0.5

G. 1

H. 2

J. 2.5

MA1808054

In the standard (x, y) coordinate plane below, what is the distance, in units, between $(8, -5)$ and $(2, 0)$?

A. $\sqrt{11}$

B. $\sqrt{61}$

C. $\sqrt{125}$

D. $\sqrt{165}$

Which statement is true about all rational numbers? They <u>cannot</u> be written as a _____.

F. fraction

G. decimal that terminates

H. decimal that continues infinitely in a repeated pattern

J. decimal that continues infinitely with no repeated pattern

MA1808039

In the standard (x, y) coordinate plane, a linear function is defined by the points $(3, 10)$ and $(7, 18)$. What is the y-intercept of the graph of the function?
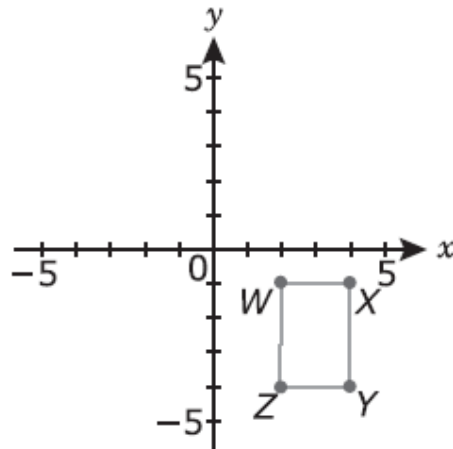
F. 2

G. 4

H. 8

J. 14

In the standard (x, y) coordinate plane below, rectangle *WXYZ* will be rotated 180° clockwise about the origin.

What will be the coordinates of the image of point *W* ?

A. $(-2, 1)$

B. $(-2, -1)$

C. $(-1, 2)$

D. $(-1, -2)$

Jenna used an equation to determine the fraction equal to $0.\overline{17}$. The first few steps of her work are shown below. Which fraction is equal to $0.\overline{17}$?

$$x = 0.\overline{17}$$

$$100x = 17.\overline{17}$$

$$100x - x = 17$$

F. $\dfrac{17}{99}$

G. $\dfrac{17}{100}$

H. $\dfrac{17}{101}$

J. $\dfrac{1,717}{10,000}$

In the figure below, $\overleftrightarrow{JF}$ is intersected by line segments to form $\triangle IKH$ and $\triangle GFH$. What is the measure of $\angle K$?

A. 27°

B. 52°

C. 61°
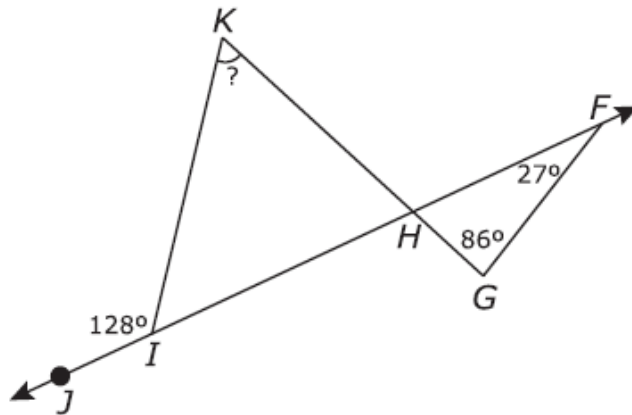
D. 67°

A cone has a height of 7 inches and a base with a radius of 4 inches, as shown below. Which of the following values is closest to the volume of the cone in cubic inches?

A. 60

B. 90

C. 120

D. 350

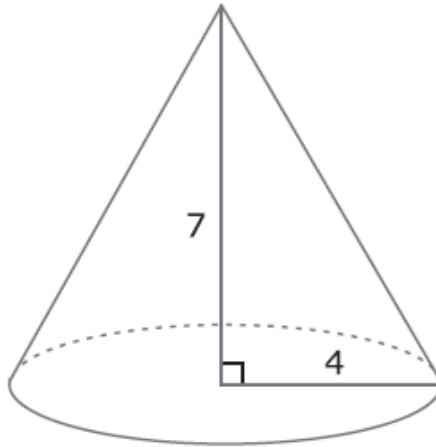Sherry and James sorted craft supplies into individual bags for a children's art festival. Sherry began sorting at 10:10 a.m. By 10:40 a.m., she had sorted enough supplies for 10 bags. James sorted twice as fast as Sherry. Which equation relates the time, t minutes, it took James to sort the supplies for b bags?

A. $t = 1.5b$

B. $t = 2.5b$

C. $t = 3b$

D. $t = 6b$

For a group of people in a research study, the relationship between h, a person's height in centimeters, and a, the person's arm span in centimeters, is modeled by the equation $h = 0.75a + 44.5$. What is the slope of the equation, and what does it represent?

A. 0.75; the number of centimeters the height increases for each centimeter the arm span increases

B. 0.75; the number of centimeters the arm span increases for each centimeter the height increases

C. 44.5; the height, in centimeters, when the arm span is 0.75 centimeters

D. 44.5; the number of centimeters the height increases for each centimeter the arm span increases

Two companies hire students to pull dandelions. Company A determines how much to pay based on the equation $p = 0.05x + 10,$ where p dollars is the pay for x dandelions pulled. Company B pays a base amount of $14, plus a certain amount for each dandelion pulled. The two companies would pay the same amount for 100 dandelions pulled. What is the amount Company B pays for each dandelion pulled?

A. $0.01

B. $0.04

C. $0.05

D. $0.14

Grade 9 Review Items						
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA1809199	0.427	A	3	A-REI.C.6	A	B
MA121503 MA1809017	0.341	F	2	F-IF.B.5	D	A and C
MA1809113	0.319	G	3	G-MG.A.2	D	A and B
MA1809076	0.318	F	2	F-IF.A.1	B	A
MA1809189	0.311	G	2	G-GPE.B.5	E	B, C, and D
MA121503 MA1809016	0.297	F	3	F-LE.A.2	D	C
MA1809037	0.289	A	2	A-CED.A.2	A	E
MA121512 MA1809022	0.272	S	2	S-CP.B.7	C	A and B

To raise funds for park equipment, a neighborhood parent group rented some games on three weekends. To enter the carnival, each participant paid an admission fee. The admission fee and rental fee remained the same each weekend. The amount of funds raised was the difference between the total admission fees and the rental fee. The table below shows the number of participants and the funds raised on each of the three weekends.

| Weekend	Number of Participants	Funds Raised
1	75	$125
2	150	$500
3	300	$1,250

What was the rental fee for the games for one weekend?

A. $250

B. $375

C. $400

D. $500

E. $650

Use the following information to answer the questions in the set.

An ecologist studied the lengths, n inches, and weights, w pounds, of a group of sunfish. Her results are recorded in the graph below.

Lengths and Weights of Sunfish
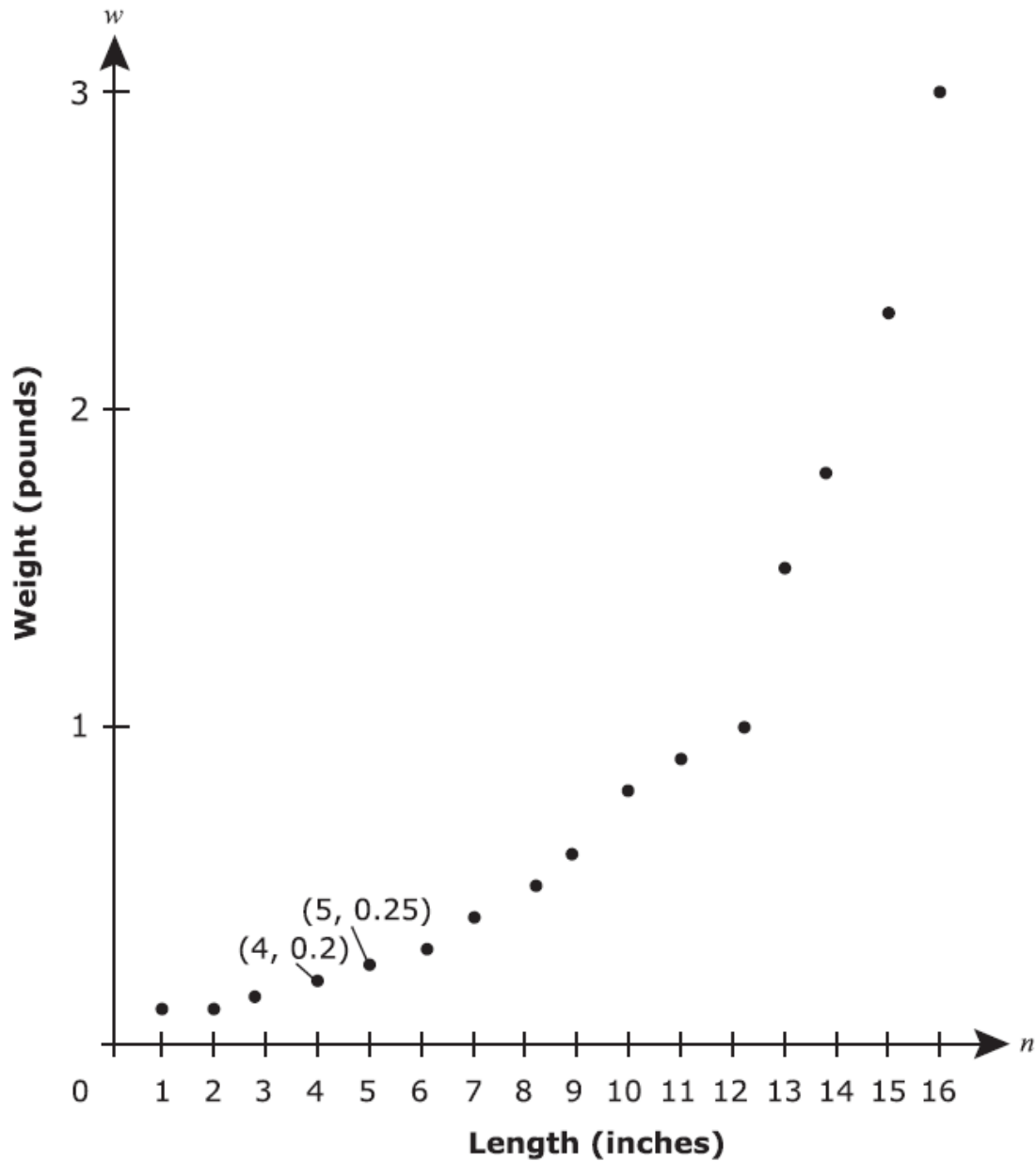
All possible lengths, in inches, of sunfish can be described as

F. integers.

G. irrational numbers.

H. positive integers.

J. positive real numbers.

K. positive irrational numbers.

Mark purchased a home with 1,200 <u>square feet</u> of living space with 8-foot-high ceilings throughout. The annual cost of heating and cooling a home in this area is approximately $50 per 1,000 <u>cubic feet</u> of living space. Which value is the best estimate of Mark's annual cost of heating and cooling the home he purchased?

F. $60

G. $192

H. $333

J. $480

K. $3,000

The table shown below represents a relation.

x	y
–2	4
–1	4
0	3
1	2
3	–3

Which of the following statements is correct?

A. The relation is not a function.

B. The relation is a function with domain $\{-2, -1, 0, 1, 3\}$.

C. The relation is a function with domain $\{0, 1, 2, 3\}$.

D. The relation is a function with domain $\{-3, 2, 3, 4\}$.

E. The relation is a function with domain $\{-3, -2, -1, 0, 1, 2, 3, 4\}$.

Line p represents the equation $y = \frac{5}{2}x - 10$. In the standard (x, y) coordinate plane, line q is parallel to line p and passes through $(4, 1)$. Which of the following equations is represented by line q ?

F. $y = -\frac{5}{2}x - 9$

G. $y = -\frac{2}{5}x - \frac{3}{5}$

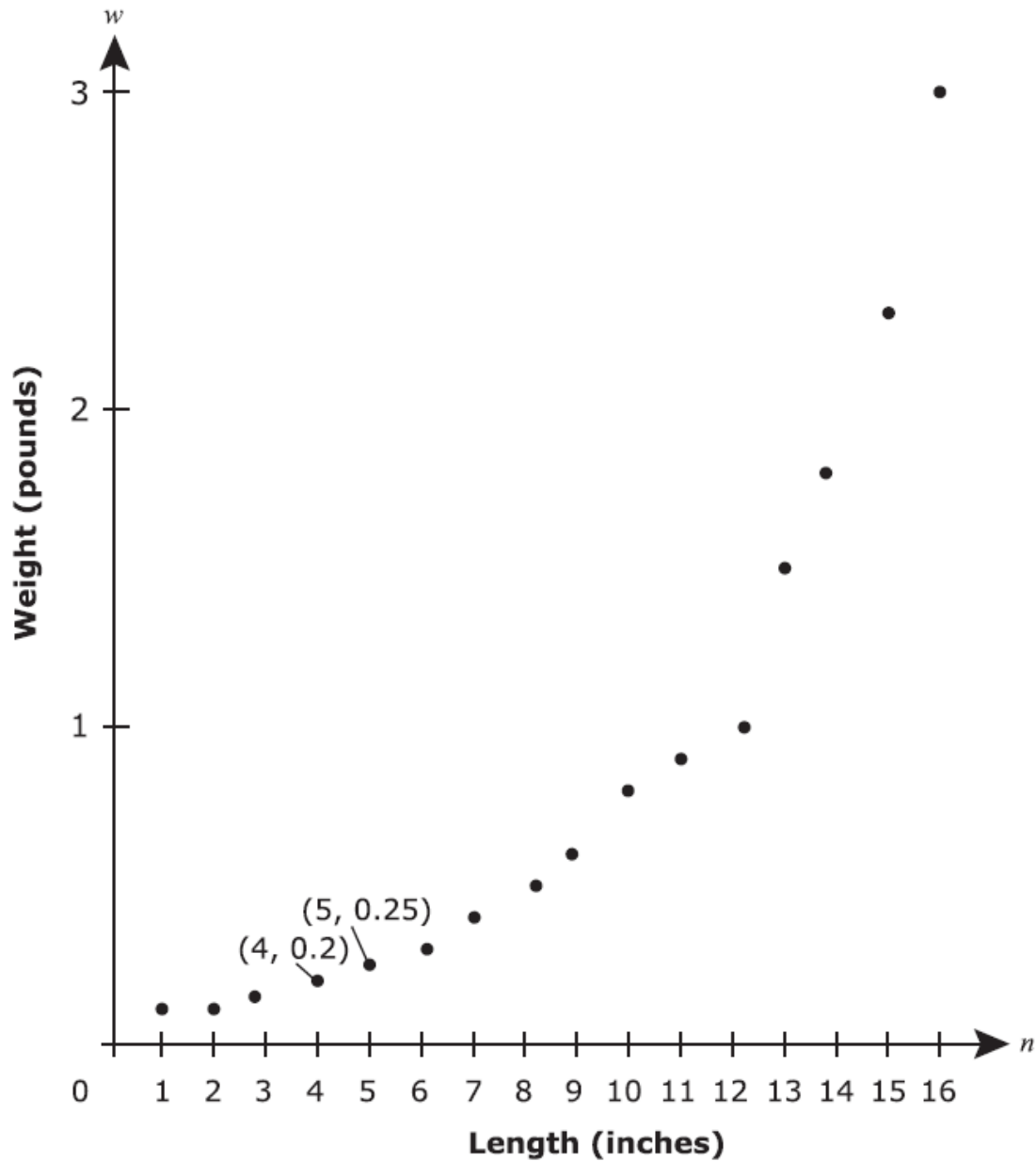**H.** $y = \frac{2}{5}x + \frac{3}{5}$

J. $y = \frac{5}{2}x + 9$

K. $y = \frac{5}{2}x - 9$

Use the following information to answer the questions in the set.

An ecologist studied the lengths, n inches, and weights, w pounds, of a group of sunfish. Her results are recorded in the graph below.

Lengths and Weights of Sunfish

Based on the data, which of the following values best approximates the weight, in pounds, of a sunfish with a length of 18 inches?

A. 2.3

B. 3.1

C. 3.9

D. 4.7

E. 15.9

Mandy bought an item for x dollars, plus 8% tax. She gave the cashier a $100 bill. Which of the following equations represents the amount of change, y dollars, Mandy should have received?

A. $y = 100 - 1.08x$

B. $y = (100 - 1.08)x$

C. $y = 100 - 0.92x$

D. $y = (100 - 0.92)x$

E. $y = 100 - 0.08x$

MA121512

Use the following information to answer the questions in the set.

A community college offered 3 music classes last semester. A total of 63 students enrolled in one or more of the classes. The Venn diagram below shows the number of students enrolled in each of the classes.
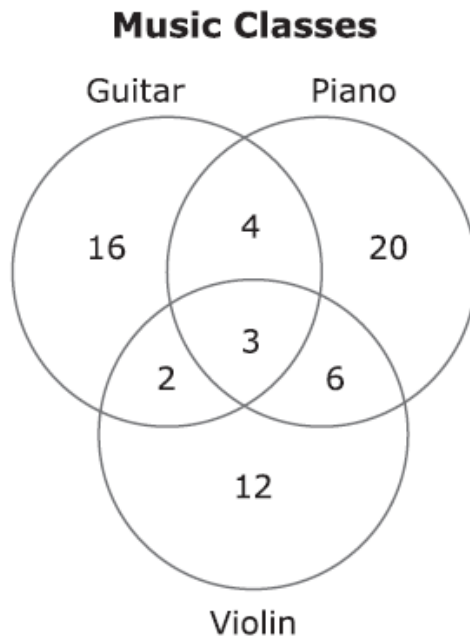
Music Classes

MA1809022

One of the students who enrolled in at least one of the music classes last semester will be selected at random for a free class. To the nearest hundredth, what is the probability the selected student was <u>not</u> enrolled in the guitar class?

F. 0.25

G. 0.38

H. 0.60

J. 0.65

K. 0.75

					Grade 10 Review Items		
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA121505 MA1809018	0.45	S	2	S-ID.A.1	B	D
MA1809080	0.448	F	2	F-IF.A.2	C	D
MA1809194	0.43	N	1	N-RN.A.2	A	B
MA1809098	0.418	G	2	G-CO.A.5	B	D
MA1809100	0.402	G	3	G-CO.C.10	D	B
MA1809172	0.397	G	3	G-GPE.B.4	Constructed Response	
MA1809193	0.386	S	3	S-CP.A.1	A	B and E
MA111702 MA1809012	0.366	G	2	G-SRT.C.8	E	C
MA1809195	0.359	G	2	G-SRT.B.5	D	E
MA1809030	0.353	A	2	A-APR.D.6	E	A, B, C and D
MA1809107	0.345	G	2	G-GPE.B.5	A	C

Use the following information to answer the questions in the set.

The histogram below shows the number of states in the United States with mean annual temperatures within certain ranges over the last decade.
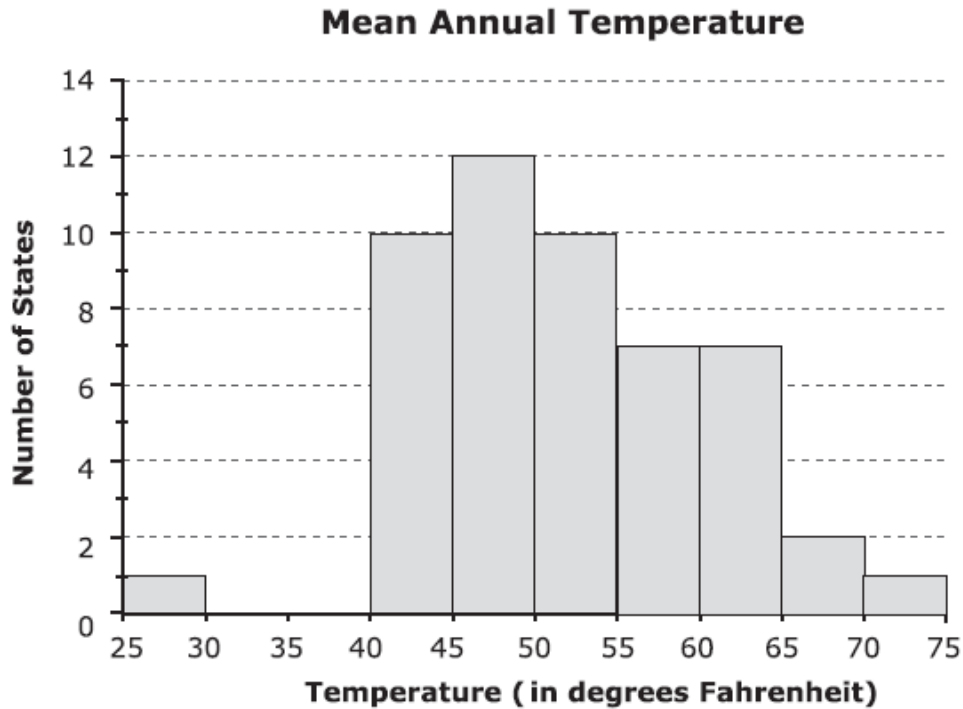
Mean Annual Temperature

During the last decade, the mean annual temperature in South Carolina was 62.4°F . What is the minimum number of states that must have had a mean annual temperature greater than that of South Carolina?

A. 1

B. 3

C. 4

D. 6

E. 9

Given $f(x) = 5x - 6$ and $g(x) = 3x^2$, what is the value of $4f(1) + g(2)$?

F. –88

G. –52

H. 8

J. 32

K. 44

For $a \neq 0$, which of the following expressions is equivalent to $\dfrac{18a^{10}}{-6a^5}$?

F. $-3a^5$

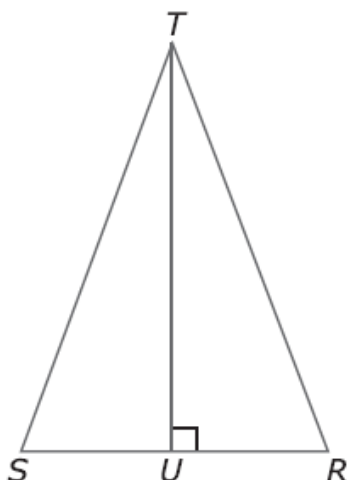**G.** $-3a^2$

H. $12a^2$

J. $24a^2$

K. $24a^5$

In the standard (x, y) coordinate plane, $B(5, 1)$ will be translated 4 units up and 3 units to the left. What are the coordinates of the image of B ?

A. $(2, -3)$

B. $(2, 5)$

C. $(8, 5)$

D. $(9, -2)$

E. $(9, 4)$

In the figure below, $\triangle RST$ is isosceles, and $\overline{TU} \perp \overline{RS}$.

To prove that base angles of an isosceles triangle are congruent, Madison first proved $\triangle TUR \cong \triangle TUS$. She then concluded $\angle R \cong \angle S$. Which of the following reasons supports this conclusion?

A. Vertical angles are congruent.

B. Side-Side-Angle congruence theorem.

C. Isosceles triangles have 3 congruent angles.

D. Corresponding angles of congruent triangles are congruent.

E. The sum of the measures of the 2 angles that form a linear pair is 180°.

PQRS is graphed in the standard (*x*, *y*) coordinate plane below, with vertices *P*(0, 0), *Q*(1, 3), *R*(5, 3), and *S*(4, 0).
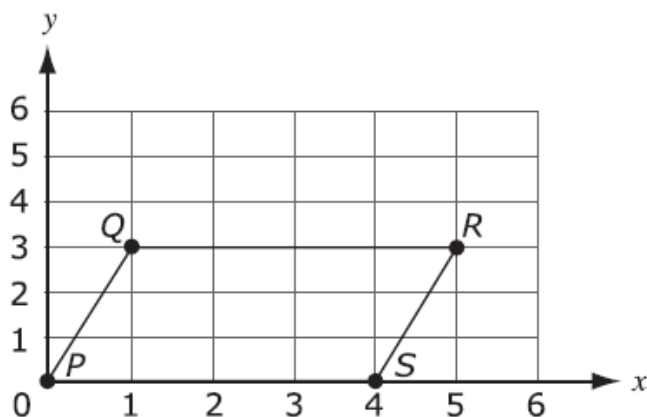
Use the slope formula and/or the distance formula to prove *PQRS* is a parallelogram.

Write your answer in your answer document.

There are 100 applicants for a job. Of those people, 35 are female and 80 have a college degree. The number of the applicants who both are female and have a college degree must be a number from

F. 15 to 35.

G. 20 to 35.

H. 20 to 65.

J. 28 to 45.

K. 35 to 80.

Use the following information to answer the questions in the set.

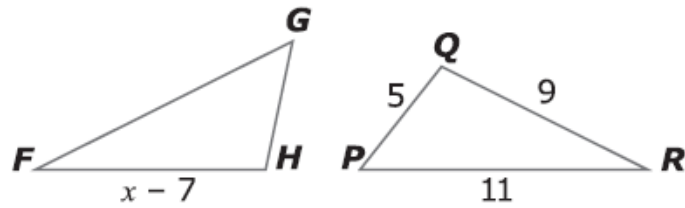A triangle is graphed in the standard (x, y) coordinate plane below.
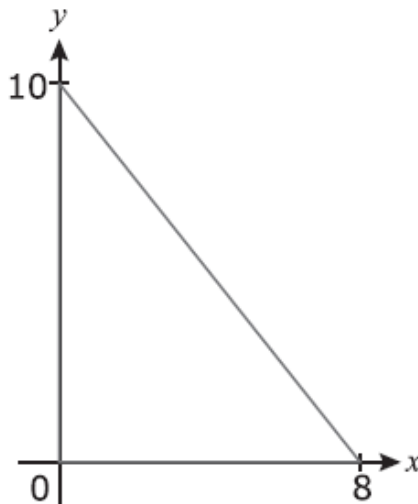
MA1809012

What is the length, in coordinate units, of the hypotenuse of the triangle?

A. 6

B. 12

C. 18

D. $\sqrt{84}$

E. $\sqrt{164}$

In the figure shown below, $\triangle FGH \cong \triangle RPQ$. Side lengths are given in inches. What is the value of x ?

F. 2

G. 9

H. 12

J. 16

K. 18

Which of the following expressions is equivalent to $\frac{3x^3+7x^2+1}{x}$?

F. $3^3 + 7^2 + 1$

G. $3^3 + 7^2 + \frac{1}{x}$

H. $3x^2 + 7x^2 + 1$

J. $3x^2 + 7x + 1$

K. $3x^2 + 7x + \frac{1}{x}$

Line *a* is represented by the equation $y = \frac{4}{5}x - 8$. In the standard (x, y) coordinate plane, line *b* is perpendicular to line *a* and passes through the point located at $(0, 2)$. Which of the following equations represents line *b* ?

A. $y = -\frac{5}{4}x + 2$

B. $y = -\frac{5}{4}x - 2$

C. $y = \frac{4}{5}x + 2$

D. $y = \frac{5}{4}x + 2$

E. $y = \frac{5}{4}x - 2$

Grade 11 Review Items						
Item ID	**Difficulty**	**Domain**	**DOK**	**Standard**	**Key**	**Primary Distractor(s)**
MA1809106	0.413	G	2	G-GPE.A.1	B	C
MA1809087	0.373	F	3	F-LE.A.3	D	A
MA1809156	0.349	S	2	S-ID.A.4	C	A and B
MA1809122	0.348	G	2	G-SRT.C.8	E	A, B and C
MA1809143	0.295	N	3	N-RN.B.3	E	C and D
MA1809102	0.273	G	3	G-GMD.A.3	B	A
MA1809174	0.213	F	3	F-IF.B.4		

What are the radius, r coordinate units, and the coordinates of the center of the circle with equation $(x - 1)^2 + (y - 3)^2 = 16$?
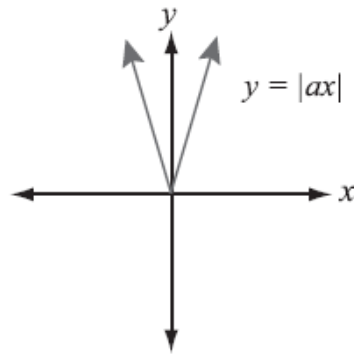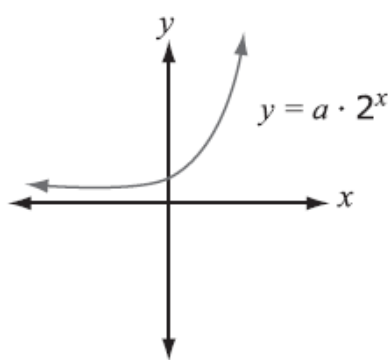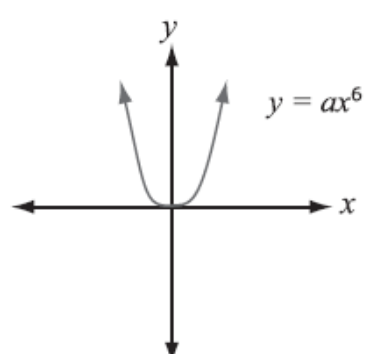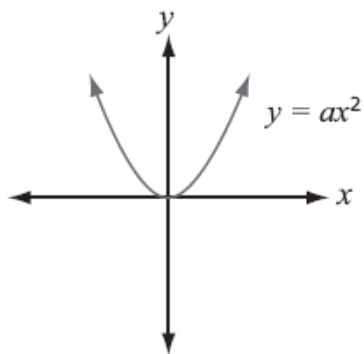
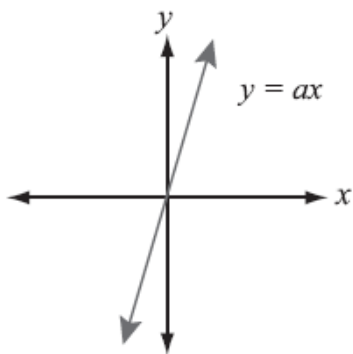**F.** $r = 4$; $(-1, -3)$

G. $r = 4$; $(1, 3)$

H. $r = 16$; $(-1, -3)$

J. $r = 16$; $(1, 3)$

K. $r = 256$; $(1, 3)$

Five functions are graphed below. The scale and the value of a is the same for each graph.

$y = ax$

Graph 1

$y = ax^2$

Graph 2

$y = ax^6$

Graph 3

$y = a \cdot 2^x$

Graph 4

$y = |ax|$

Graph 5

Which graph shows the function that will increase the most rapidly as x increases without end?

A. Graph 1

B. Graph 2

C. Graph 3

D. Graph 4

E. Graph 5

For data that are normally distributed, 68% of the data are within one standard deviation of the mean and 95% of the data are within two standard deviations of the mean.
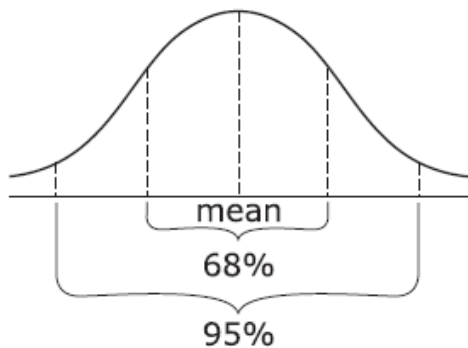
The heights of 300 boys at North High were recorded and found to be normally distributed with a mean of 66 inches and a standard deviation of 3. What is the expected number of boys with heights between 60 and 72 inches?

A. 204

B. 245

C. 285

D. 293

E. 300

MA1809122

A fence forms a right triangle with the edges of a campground and a picnic area, as shown below, with dimensions in feet.

Campground | Picnic Area

14

$x°$

Fence

48
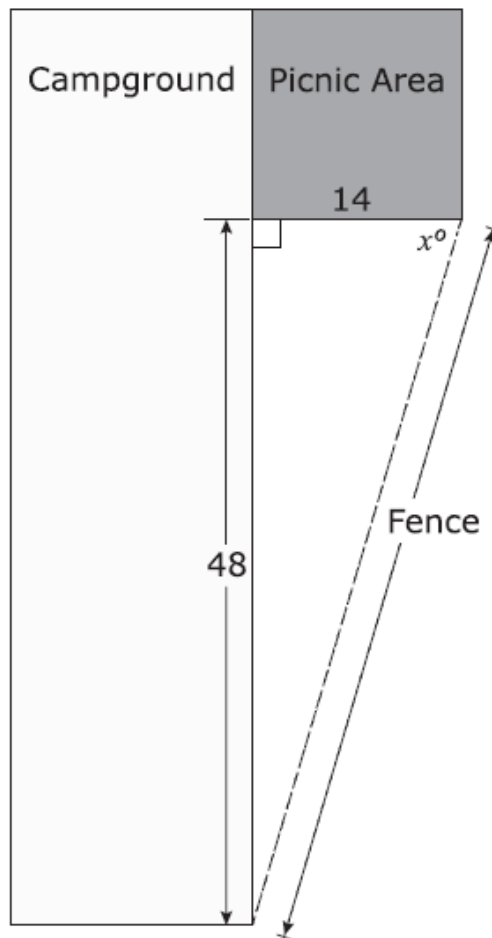
Which of the following equations determines the value of x ?

A. $\cos(x°) = \dfrac{14}{48}$

B. $\sin(x°) = \dfrac{14}{48}$

C. $\sin(x°) = \dfrac{48}{14}$

D. $\tan(x°) = \dfrac{14}{48}$

E. $\tan(x°) = \dfrac{48}{14}$

For a rational number m and an irrational number n, which of the following numbers could be $m + n$?
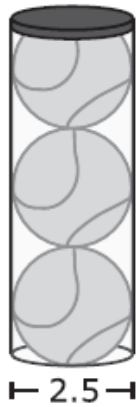
F. −3

G. 0

H. 2.7

J. $4\frac{1}{3}$

K. $\frac{7+\sqrt{5}}{2}$

The cylindrical can shown below holds 3 tennis balls, each with a diameter of 2.5 inches. Which value is closest to the smallest possible volume, in cubic inches, of the can?
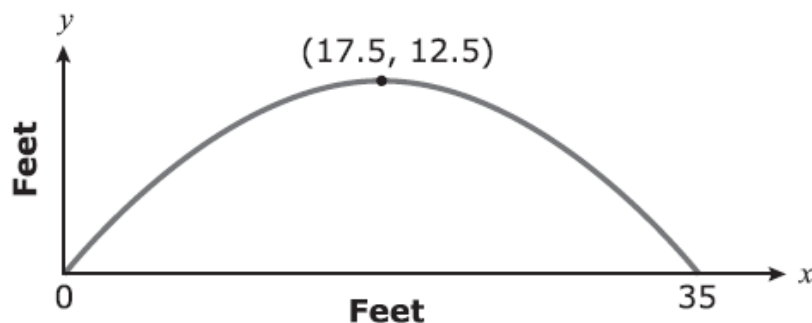

⊢ 2.5 ⊣

F. 25

G. 37

H. 47

J. 59

K. 148

The arch that supports a bridge is defined by the quadratic equation

$y = \frac{10}{7}x - \frac{2}{49}x^2$, where x and y are measured in feet. The equation has

2 real roots at $x = 0$ and $x = 35$, and the vertex is $(17.5, 12.5)$.

Part A

A 2-lane road passes under the arch. Each lane is 10 feet wide, and the road is centered between the bases of the arch. Assuming the vehicle stays in its own lane, determine the maximum height of a vehicle that can pass under the arch.

Write your answer in your answer document.

Part B

Explain your answer.

Write your answer in your answer document.