STUDENT NAME _____

TAKS-M

Texas Assessment of Knowledge and Skills–Modified

GRADE 8
MATHEMATICS

Administered April 2009

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MATHEMATICS

TAKS-M
Texas Assessment of Knowledge and Skills–Modified

Mathematics Chart

LENGTH

Metric	Customary
1 kilometer = 1000 meters	1 mile = 1760 yards
1 meter = 100 centimeters	1 mile = 5280 feet
1 centimeter = 10 millimeters	1 yard = 3 feet
	1 foot = 12 inches

CAPACITY AND VOLUME

Metric	Customary
1 liter = 1000 milliliters	1 gallon = 4 quarts
	1 gallon = 128 fluid ounces
	1 quart = 2 pints
	1 pint = 2 cups
	1 cup = 8 fluid ounces

MASS AND WEIGHT

Metric	Customary
1 kilogram = 1000 grams	1 ton = 2000 pounds
1 gram = 1000 milligrams	1 pound = 16 ounces

TIME

1 year = 365 days

1 year = 12 months

1 year = 52 weeks

1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds

Metric and customary rulers can be found on the separate Mathematics Chart.

Continued on the next page

Mathematics Chart

Perimeter	square	$P = 4s$
	rectangle	$P = 2l + 2w$ or $P = 2(l + w)$
Circumference	circle	$C = 2\pi r$ or $C = \pi d$
Area	square	$A = s^2$
	rectangle	$A = lw$ or $A = bh$
	triangle	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$
	trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$ or $A = \frac{(b_1 + b_2)h}{2}$
	circle	$A = \pi r^2$
P represents the Perimeter of the Base of a three-dimensional figure.		
B represents the Area of the Base of a three-dimensional figure.		
Surface Area	cube (total)	$S = 6s^2$
	prism (lateral)	$S = Ph$
	prism (total)	$S = Ph + 2B$
	pyramid (lateral)	$S = \frac{1}{2}Pl$
	pyramid (total)	$S = \frac{1}{2}Pl + B$
	cylinder (lateral)	$S = 2\pi rh$
	cylinder (total)	$S = 2\pi rh + 2\pi r^2$ or $S = 2\pi r(h + r)$
Volume	prism	$V = Bh$
	cylinder	$V = Bh$
	pyramid	$V = \frac{1}{3}Bh$
	cone	$V = \frac{1}{3}Bh$
	sphere	$V = \frac{4}{3}\pi r^3$
Pi	π	$\pi \approx 3.14$ or $\pi \approx \frac{22}{7}$
Pythagorean Theorem		$a^2 + b^2 = c^2$
Simple Interest Formula		$I = prt$

DIRECTIONS

Read each question. Then fill in the correct answer on your answer document.

SAMPLE

Joe's family went to the zoo. There are 7 people in Joe's family, and the zoo tickets cost $5.95 each. About how much did Joe's family pay for the tickets?

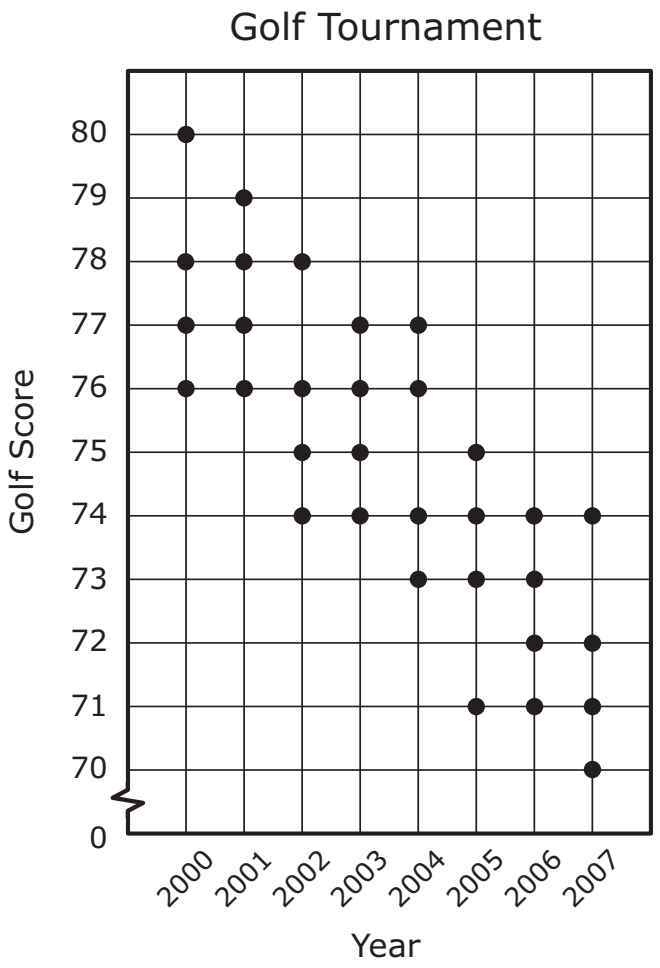
A $35

B $42

C $39

STOP

1 Look at the scatterplot below. It shows the golf scores of 4 people in an annual golf tournament from 2000 to 2007.



Which statement best describes the relationship on the scatterplot?

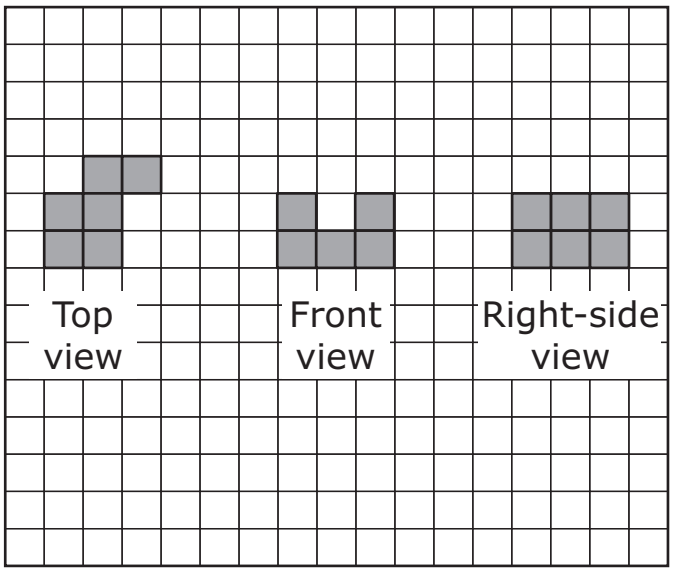
A From 2000 to 2007, the players' scores went down.

B From 2000 to 2007, the players' scores stayed the same.

C From 2000 to 2007, the players' scores went up.

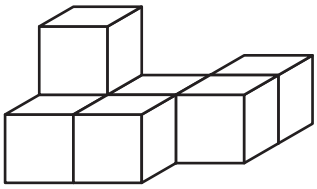
GO ON

2 Look at the drawings below. They represent the top, front, and right-side views of a 3-dimensional figure.

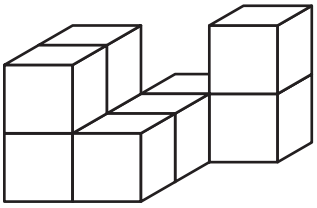


Which 3-dimensional view best represents this figure?

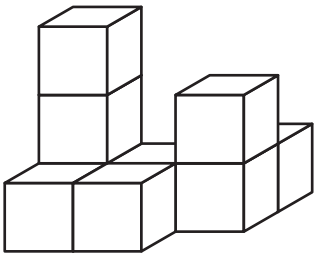
F



H



G



GO ON

3 Nancy bought 4 pounds of tomatoes for \$4.60. Which of these rates gives the same price per pound?

A 6 pounds for \$5.75

B 3 pounds for \$3.45

C 9 pounds for \$11.25

4 Mr. Rodríguez asked his students to solve the equation shown below.

$$4n + 8 = 16$$

Which equation shows a reasonable first step in solving this equation?

F $4n + (8 \cdot 8) = 16 \cdot 8$

G $4n + (8 - 8) = 16 - 8$

H $4n + (8 - 8) = 16 + 8$

GO ON

5 Which list shows the following numbers in order from least to greatest?

$$50\%,\ 0.56,\ \frac{2}{5}$$

A 0.56, 50%, $\frac{2}{5}$

B 50%, $\frac{2}{5}$, 0.56

C $\frac{2}{5}$, 50%, 0.56

GO ON

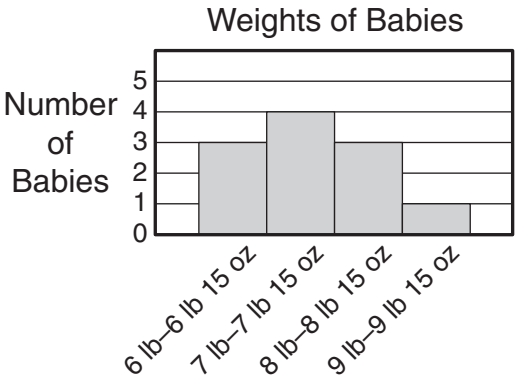
6 Look at the table below. It shows the weights of 11 babies.

Weights of Babies

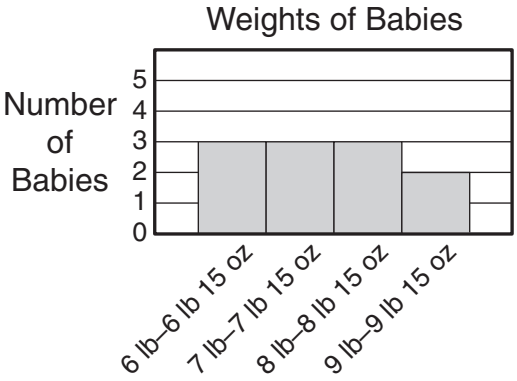
Pounds	Ounces
6	6
6	10
6	11
7	2
7	4
7	6
7	8
8	2
8	4
8	4
9	1

Which histogram best represents the data in the table?

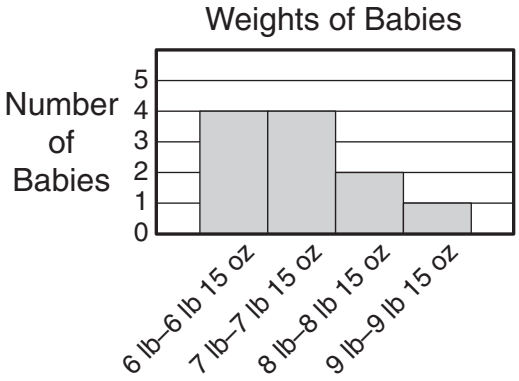
F



H

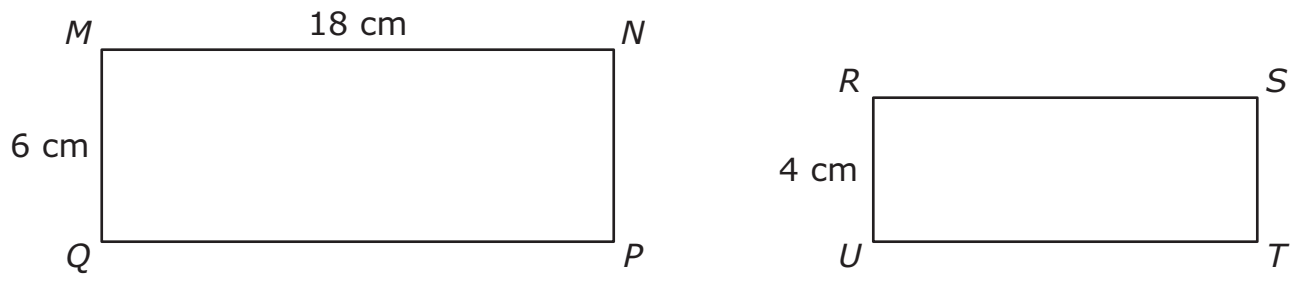


G



GO ON

7 Rectangle *MNPQ* is similar to rectangle *RSTU*.



What is the length of $\overline{RS}$ in centimeters (cm)?

A 14 cm

B 27 cm

C 12 cm

8 Zavala Middle School has 12 teachers and 216 students. Which of the following schools has a ratio of teachers to students that is equal to the ratio at Zavala Middle School?

F A school with 15 teachers and 255 students

G A school with 16 teachers and 288 students

H A school with 21 teachers and 399 students

9 A bakery sold $\frac{1}{2}$ its bread in the morning. That afternoon it sold 21 more loaves and had 6 left. How many loaves did the bakery have at the beginning of the day?

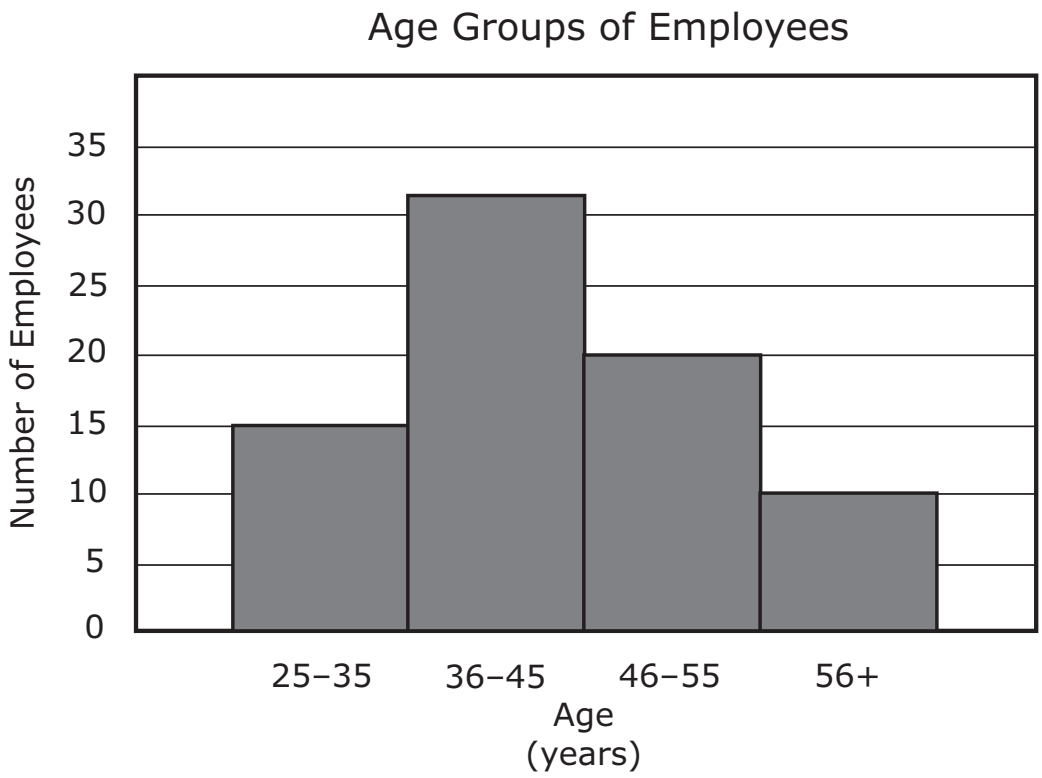
A 27

B 54

C 108

GO ON

10 Look at the graph below. It shows the age groups of the employees at an elementary school.



Which statement is best supported by the information in the graph?

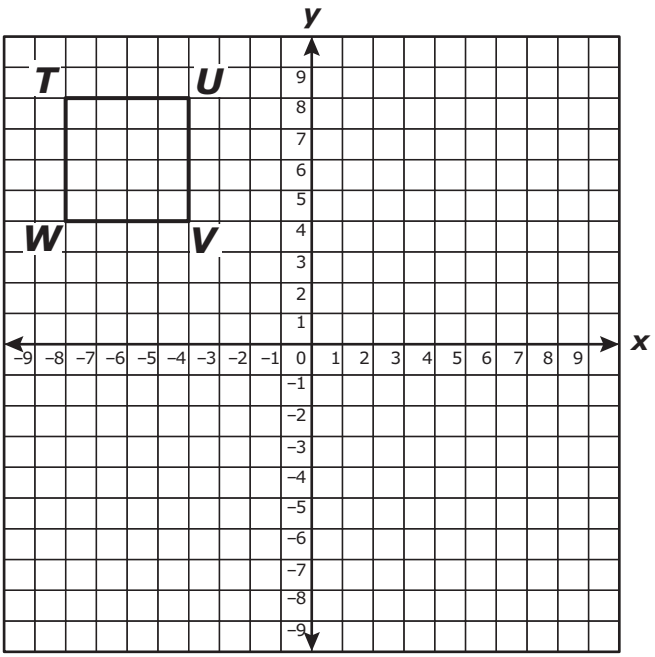
F There are more employees in the 25–35 age group than there are in the 36–45 age group.

G There are exactly 50 employees from age 36 to age 55.

H There are fewer employees in the 25–35 age group than all employees over the age of 35.

GO ON

11 Look at quadrilateral *TUVW* on the grid below.



Quadrilateral *TUVW* is reflected across the *y*-axis. Which set of coordinates best represents the endpoints of $\overline{T'W'}$?

A (8, 8), (8, 4)

B (8, –8), (4, –8)

C (–8, 8), (–8, –4)

GO ON

12 Julie has a table with a square top. The area of the tabletop is 52 square feet. Which is closest to the length of each side of this square top?

$$A = s^2$$
Area of a square = side · side

F 6 feet

G 8 feet

H 7 feet

13 Which table best represents the equation $2x + y = 4$?

A

x	*y*
0	4
2	0
−2	8

B

x	*y*
2	3
0	4
−2	0

C

x	*y*
3	10
0	4
1	2

14 George and his family drove about 288 miles on 10 gallons of gas. Which best represents the number of miles they traveled on each gallon of gas?

F 30 mi

G 20 mi

H 22 mi

15 Penelope tossed a fair coin and rolled a fair cube numbered 1 through 6. What is the probability that Penelope rolled a 5 and the coin landed tails up?

A $\frac{2}{3}$

B $\frac{1}{2}$

C $\frac{1}{12}$

16 A gymnasium was lined with flags. The flags were placed in a repeating pattern of 4 colors, as shown below.

purple, yellow, green, orange, . . .

If the first flag was purple, what color was the 30th flag?

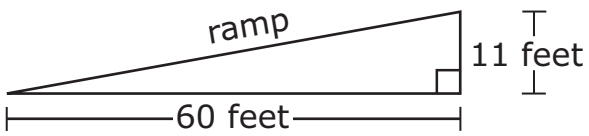
F Purple

G Yellow

H Orange

GO ON

17 A ramp in a parking garage is built using the dimensions below.



Pythagorean Theorem: $a^2 + b^2 = c^2$

Which equation can be used to find c, the length of the ramp in feet?

A $\sqrt{60^2 + 11^2} = c$

B $60 - 11 = c$

C $\sqrt{60^2 - 11^2} = c$

18 The Cadena family built a new house.

- The house is 48 feet wide by 72 feet long.
- In a scale drawing of the house, $\frac{1}{2}$ inch represents 1 foot.

What is the width of this house in the scale drawing?

F 24 inches

G 36 inches

H 6 inches

19 Danny has a collection of 85 baseball cards. Players on his favorite team are found on 20% of the cards. Which proportion can Danny use to find *f*, the number of cards that are of players on his favorite team?

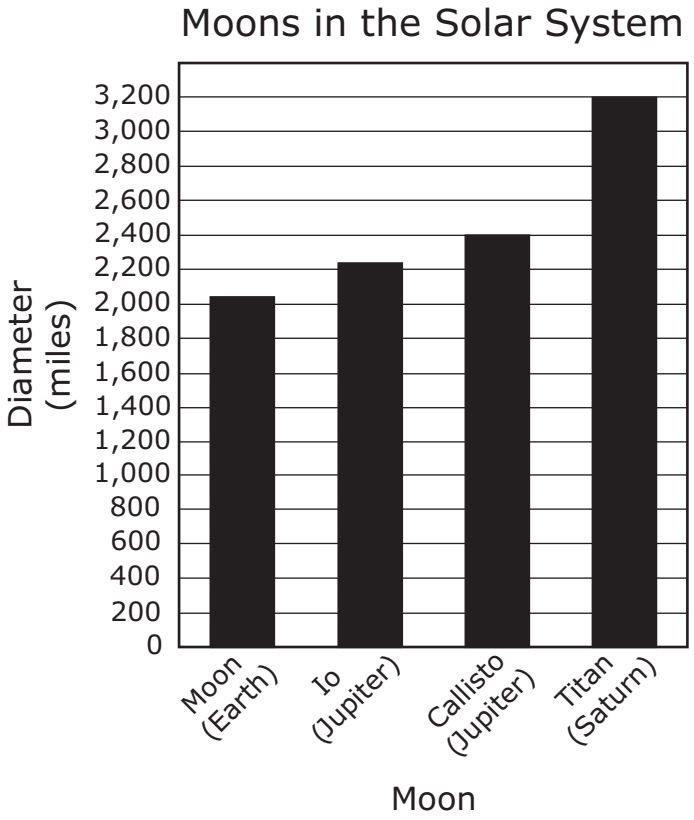
A $\frac{20}{80} = \frac{f}{100}$

B $\frac{f}{85} = \frac{20}{100}$

C $\frac{f}{85} = \frac{80}{100}$

GO ON

20 Look at the bar graph below. It shows the diameter of 4 moons in the solar system.



Which moon has a diameter between 2,100 and 2,300 miles?

F Callisto

G Titan

H Io

GO ON

21 Which of the following expressions is equal to 30?

A $28 - 7 \times (30 \div 6)$

B $28 + 7 - (30 \div 6)$

C $28 \times 7 \div (30 - 6)$

22 The median, mode, and range of the heights of basketball players on a team are known. The shortest player on the team is 70 inches tall. Which of these can be used to find the height of the tallest player?

F Mode

G Range

H Median

23 A grocery store had a sale.

- Beef cost \$9.85 for 5 pounds.
- Bread cost \$1.88 for 1 loaf.

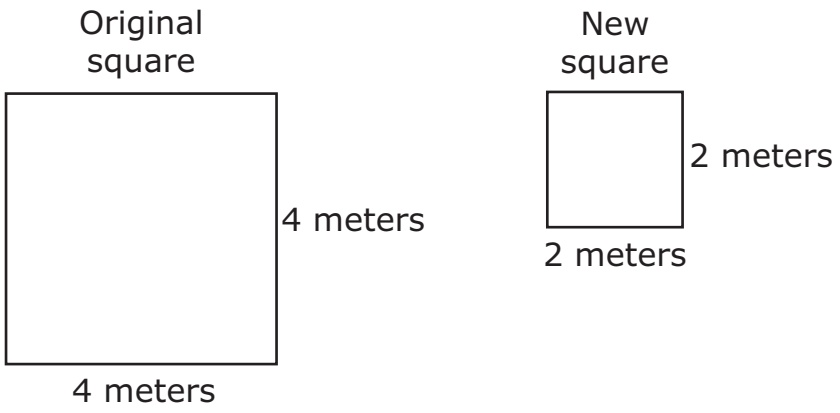
Which equation can be used to find c, the cost of 3 pounds of beef and 2 loaves of bread?

A $c = 3(9.85 \div 5) + 2(1.88)$

B $c = 9.85 + 1.88$

C $c = 3(1.88) + 2(9.85)$

24 How does the area of a square change when the sides are reduced to $\frac{1}{2}$ their lengths?



$$A = s^2$$

Area of a square = side · side

F The new area is $\frac{1}{8}$ as large as the original area.

G The new area is $\frac{1}{6}$ as large as the original area.

H The new area is $\frac{1}{4}$ as large as the original area.

GO ON

25 Look at the table below. It shows the shipping fee for different amounts of purchases.

Office Supplies

Amount of Purchase	Shipping Fee
$24.99 or less	$5.50
$25.00 to $49.99	$7.00
$50.00 to $74.99	$8.50
$75.00 to $99.99	$10.00
$100.00 to $124.99	
$125.00 to $149.99	?

If the shipping fees continue to increase at the same rate, what is the shipping fee for a $134.00 purchase?

A $11.50

B $13.00

C $14.50

26 Which equation models the rule shown below?

$$a^m \div a^n = a^{m-n}$$

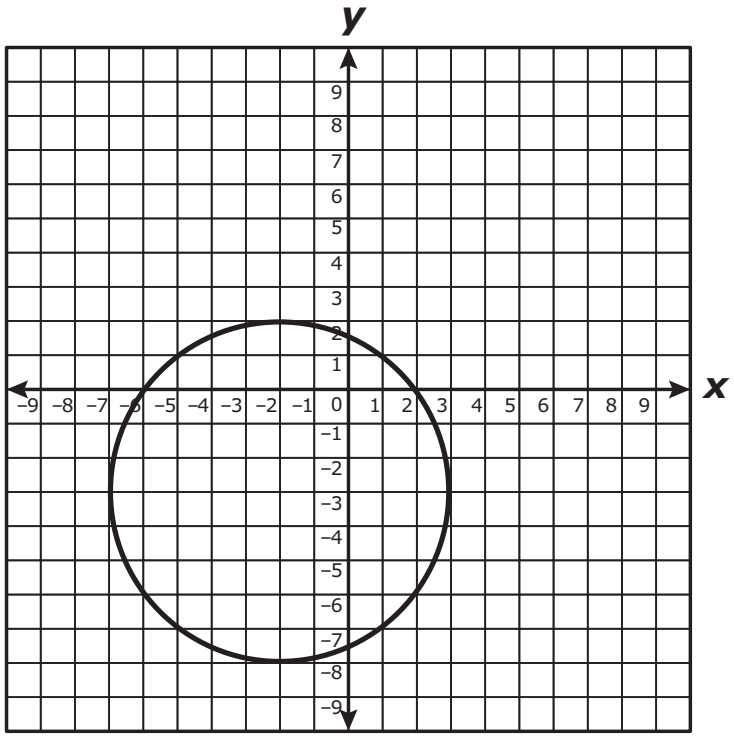
F $5 + 5 + 5 + 5 + 5 + 5 = 5^{4+2}$

G $5 \cdot 5 \div 5 \cdot 5 = 5^{4-2}$

H $5^4 \div 5^2 = 5^{4-2}$

GO ON

27 The circle shown below has a radius of 5 units.



Which ordered pair best represents the center of this circle?

A (–3, –3)

B (–2, –3)

C (–2, –4)

GO ON

28 Jeremy's ceiling fan spins 4.5 times as fast on high speed as it does on low speed.

- The number of revolutions the fan makes on high speed can be represented by *h.*
- The number of revolutions the fan makes on low speed can be represented by l.

Which equation shows the relationship between *h* and l if the fan spins the same amount of time on each speed?

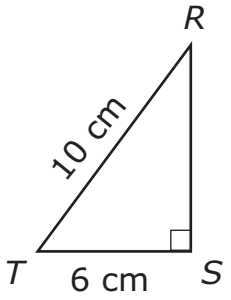
F $h = 4.5l$

G $h = l + 4.5$

H $4.5h = l + 4.5$

GO ON

29 Look at the triangle below. ΔRST is a right triangle.



Pythagorean Theorem: $a^2 + b^2 = c^2$

What is the length of $\overline{RS}$ in centimeters (cm)?

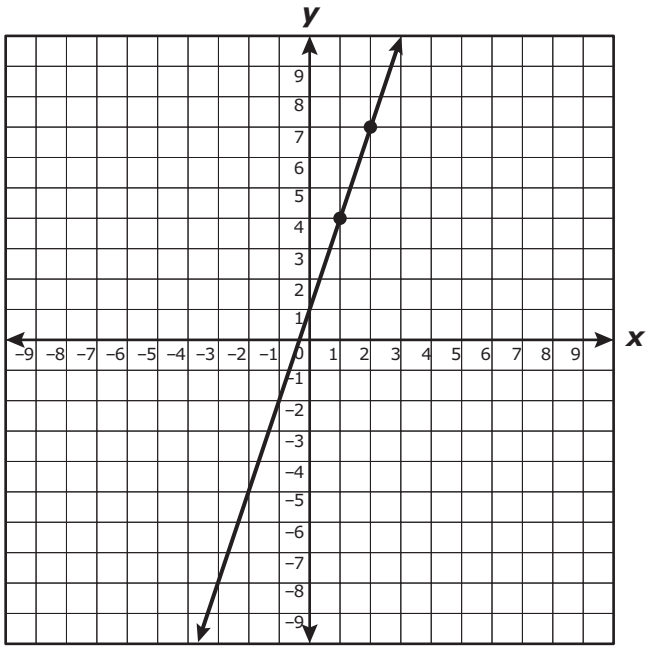
A 8 cm

B 6 cm

C 12 cm

GO ON

30 Which of the following equations best represents the graph below?



F $y = -3x - 1$

G $y = 3x - 1$

H $y = 3x + 1$

31 At a coffee shop, Colombian coffee beans cost \$8.75 per pound, and Brazilian coffee beans cost \$9.50 per pound. How much do 2 pounds of Colombian coffee beans and 1 pound of Brazilian coffee beans cost, not including tax?

A \$27.00

B \$27.75

C \$36.50

GO ON

32 Esther is 5 years older than Margaret. Margaret is 1 year older than 3 times Bertha's age. Bertha is 5 years old. Who is oldest?

F Bertha

G Esther

H Margaret

33 Look at the table below. It shows the position of each term in a sequence. The table also shows the value of the first 5 terms in the sequence.

Position (n)	1	2	3	4	5
Value of Term	5	9	13	17	21

Which expression can be used to find any term in the sequence?

A $4n + 1$

B $n + 1$

C $-4n + 9$

34 The results of a random survey of 50 dog owners showed that 10 of them use Tex Brand dog food. How many dog owners out of 3,500 can be expected to use Tex Brand dog food?

F 17,500

G 700

H 3,440

35 A movie theater sold $80 worth of popcorn.

- The theater sold 20 small bags of popcorn at $3 per bag.
- The theater sold large bags of popcorn for $4 per bag.

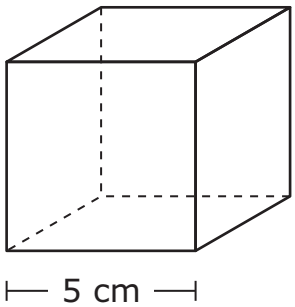
How many large bags of popcorn did the theater sell?

A 10

B 5

C 25

36 Look at the cube below. Each edge of the cube is 5 centimeters (cm) long.



$S = 6s^2$
Total surface area of a cube = 6 · side · side

What is the total surface area of the cube?

F 25 square centimeters

G 125 square centimeters

H 150 square centimeters

GO ON

37 A company builds 2 models of bookcases.

- One model has 3 shelves.
- The other model has 4 shelves.
- The company built both models of bookcases and used exactly 21 shelves.

How many of each model did the company build?

A 5 bookcases with 3 shelves and
2 bookcases with 4 shelves

B 3 bookcases with 3 shelves and
3 bookcases with 4 shelves

C 2 bookcases with 3 shelves and
4 bookcases with 4 shelves

38 Tomoko has a rectangular picture that is 12 inches by 18 inches. She enlarges the picture's dimensions by 50%. What are the dimensions of the new picture?

F 9 inches by 15 inches

G 15 inches by 21 inches

H 18 inches by 27 inches

39 Earth has a diameter of about 41,900,000 feet. Which expression represents this number in scientific notation?

A 4.19×10^{7}

B 4.19×10^{5}

C 41.9×10^{7}

GO ON

40 Janet is using the buttermilk pancake recipe shown below. The recipe makes 12 pancakes.

Buttermilk Pancakes
(makes 12 pancakes)

2 eggs

1 cup yogurt

1 cup buttermilk

$\frac{1}{4}$ cup oil

2 cups pancake mix

If Janet wants to make 36 pancakes, how much of each ingredient does she need?

F

1 egg

$\frac{1}{2}$ cup yogurt

$\frac{1}{2}$ cup buttermilk

$\frac{1}{8}$ cup oil

1 cup pancake mix

G

4 eggs

2 cups yogurt

2 cups buttermilk

$\frac{1}{2}$ cup oil

4 cups pancake mix

H

6 eggs

3 cups yogurt

3 cups buttermilk

$\frac{3}{4}$ cup oil

6 cups pancake mix

BE SURE ALL OF YOUR ANSWERS ARE RECORDED ON THE ANSWER DOCUMENT.

STOP

TAKS-M GRADE 8
MATHEMATICS
APRIL 2009