22 - TEA'S Myth of "Harder" Versus "Easier" 1999-2000 TAAS Test As Governor Prepared Run for U.S. President Exposed

As Texas was preparing the transition, it unveiled its new curriculum standards previously noted as TEKS. That meant for the 1999-2000 testing cycle, the TEKS 'harder' standards would be incorporated into the TAAS test. That development prompted then TEA Commissioner Jim Nelson write to school district officials across Texas an explanation of the harder test prior to the first TAAS administration of that test cycle in the fall of 1999 for the 1999-2000 TAAS testing cycle.

The details of that communication warned districts that the tests at every grade level would be more academically rigorous or "harder." With that warning came assurances about what was destined to become the strategy of Texas' future. Nelson urged school officials not to "worry" because the passing standards would be lowered such that the percentage of students who would fail the various tests would not increase comparable to the failure rates of the "easier" TAAS in prior years. Here are the most critical excerpts from Nelson's October 25, 1999 letter to school officials:

"Like TEKS themselves, this test is more rigorous. However, a child who would have passed last year's test will also pass this year's test...In other words, the TAAS will be no more or less difficult for a child to pass in one year than another...Since a child who could have passed last year's test will also pass this year's, there will be no change from the perspective of a school district for purposes of accountability..."

This language is part of the overall narrative of The Lies of Texas that has additional detail.

Perhaps when the TEA realized the potential impact upon Texas Governor George Bush's race for the Presidency, the TEA administered the "harder" test in the fall but retreated back to the "easier" test in February 2000.

The text of LIES provides more contextual detail.

However, here is an analysis of the HARDER test in the fall and the EASIER test in February of the 10th grad exit math.

An experienced and highly competent high school math teacher was retained to evaluate the actual questions on the HARDER test and the EASIER test.

Here are the actual questions; here's the grade-level analysis by that teacher using the criterion assessments outlined in THE EDUCATION CHILD written by Chester Finn – head of the Fordham Foundation – and Bill Bennet – former secretary of education – defining grade level math skills.

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion Of Test Administration - FALL 99 - FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
1	Fall 99/00	FALL	2	2	7		x		word problem with negative unit rate	Has to be G,H, or J since 6*2 ends in a 2
2	Fall 99/00	FALL	5	5	5		x		Adding fractions-find a common denominator	Looked at this several times to make sure I wasn't missing something. Whole numbers of 5+2+2 is 9. 1/2+3/4+2/3 is larger than 1, so the sum is more than 10. Has to be "not here" since all answers start with 9
3	Fall 99/00	FALL	12	12	5			x	Subtract mixed number from a whole number	Reasonable problem with common student distractors, plus it includes the choice "not here"
4	Fall 99/00	FALL	13	13	8			x	Two variable inequality	Can't be C. The rest are possible
5	Fall 99/00	FALL	15	15	6			x	Evaluate given equation/convert units	Can't be F since one answer has to be larger than 250. G also feels very improbable but is the result of a common error - student adds instead of multiplies
6	Fall 99/00	FALL	21	21	6		x		Adding with a negative integer	Ascend - so answer is larger than -173, so only 1 answer choice is eliminated
7	Fall 99/00	FALL	22	22	6		x		Proportions with positive integers	All answer choices should be larger than 10 and they are, so no intuition, student just has to work it out
8	Fall 99/00	FALL	24	24	6			x	Measures of data - mode	Vocabulary question. Student knows what a mode is or they don't
9	Fall 99/00	FALL	34	34	6		x		Exponents	Student only has to know 3^3=27 to get the answer
10	Fall 99/00	FALL	35	35	7			x	Volume of a cylinder	No intuition, student just has to work it out.
11	Fall 99/00	FALL	36	36	6		x		Percent increase	A is wrong - problem says should be larger than 465,000
12	Fall 99/00	FALL	37	37	6	x			Two step word problem with decimals (also could apply distributive property)	No intuition, student just has to work it out.
13	Fall 99/00	FALL	42	42	6	Early 6		Or late 5	Fractional dividend, whole number divisor	Answer should be smaller than 14.5, choice J is larger (and doesn't even represent an obvious common mistake)
14	Fall 99/00	FALL	46	46	8			x	Writing an equation with 2 variables from a word problem	No intuition, student needs to think it through
15	Fall 99/00	FALL	49	49	5		x		Adding units, convert oz to pounds	No intuition, student just has to work it out.
16	Fall 99/00	FALL	51	51	5			x	Make an estimation by rounding decimals + multiply by a 3 digit number	No intuition, student just has to work it out.
17	Fall 99/00	FALL	52	52	7		x		Two step word problem with decimals	This might be higher level number sense, but multiplying 1.5 by an odd number means the answer has to end in .50, meaning only B and D can be answers
18	Fall 99/00	FALL	53	53	6		x		Find a percentage from circle graph	Visually, the answer is less than 50% but bigger than 25%, so B and C only possible answers

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion of Test Administration – FALL 99 – FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
19	Fall 99/00	FALL	54	54	6	x			Subtracting decimals, percentages word problem	Student should know .25+.75 makes a whole, so answer has to be G, J, or "not here"
20	Fall 99/00	FALL	57	57	6		x		Proportions	No intuition, student just has to work it out.
21	Fall 99/00	FALL	58	58	6			x	Calculate area of a triangle by changing dimensions	No intuition, student just has to work it out.
22	Fall 99/00	FALL	59	59	5		x		Translations	Vocabulary question. Student knows it or they don't
23	Fall 99/00	FALL	60	60	6			x	Interpretation of graphs	No intuition, student just has to work it out, though choice F is an opinion
24	Fall 99/00	FALL	61	61	6		x		Subtracting a negative number	85-negative, has to be larger than 85, so answer is either D or "not here", though choice A does represent a common mistake of 85-28
25	Fall 99/00	FALL	62	62	6	x			Multistep word problem with decimals and profit	No intuition, student just has to work it out.
26	Fall 99/00	FALL	63	63	6		x		Create a number sentence from a word problem	No intuition, student just has to work it out.
27	Fall 99/00	FALL	65	65	6			x	2 step word problem dealing with area of a rectangle and dividing by a decimal	No intuition, student just has to work it out.
28	Fall 99/00	FALL	68	68	6	Early 6		Or late 5	Two step word problem (with converting units)	Student has to do the work, though a correct answer could probably be determined by just doing the lower end of the estimate given how far apart the answer choices are
29	Fall 99/00	FALL	80	80	6			x	Create number sentence from a word problem	No intuition, student just has to work it out.
30	Fall 99/00	FALL	82	82	8			x	Finding an ordered pair on a linear function in standard form (while also given a graph)	A student applying the graph can deduce the answer cannot be F or H
31	Fall 99/00	FALL	89	89	5			x	Mixed number dividend with a whole number divisor	Just knowing 12.5/5 should be 2.something means the answer can only be A, B, or E
32	Fall 99/00	FALL	90	90	8	x			Scientific notation	Choice D can be thrown out since it is a positive exponent and should be negative
					6,356					
1	Fall 99/00	SAME	1	1	5			x	Ordering decimals to thousandths	Only need to order the first 2 to get C
2	Fall 99/00	SAME	4	4	6		x		Proportions - unit rate	A to small (result of addition). The answer choice of "not here" makes it harder to guess
3	Fall 99/00	SAME	7	7	7			x	Representation of a solid	Only reasonable answer is A or C
4	Fall 99/00	SAME	8	8	6			x	Graphical reasoning - includes concept of ratio	F has nothing to do with vehicles sold and can be thrown out.

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion of Test Administration - FALL 99 - FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
5	Fall 99/00	SAME	9	9	8	x			Scientific notation	Answer should have a positive exponent, so C and D are the only possible answers
6	Fall 99/00	SAME	10	10	7	x			Unit rate with decimals/fractions	No intuition, student just has to work it out.
7	Fall 99/00	SAME	11	11	5			x	Estimate a sum by rounding decimals	No intuition, student just has to work it out.
8	Fall 99/00	SAME	14	14	8			x	Evaluate from a linear equation in 2 variables with decimals	No intuition, student just has to work it out.
9	Fall 99/00	SAME	16	16	6			x	Write an equation from a word problem	G can be thrown out. Quantities given should be multiplied or divided
10	Fall 99/00	SAME	18	18	6		x		Create a numerical expression from a word problem	A can probably be safely thrown out. The rest are plausible
11	Fall 99/00	SAME	19	19	7			x	Similar triangles on a coordinate plane	Segment DE is already on x-coordinate 7, so only C and D are plausible. Choice C doesn't make a triangle/has a larger y-coordinate what is visually reasonable. Only reasonable answer is D
12	Fall 99/00	SAME	20	20	8		x		Probability of 2 combined events	No intuition, student just has to work it out, though the saavy student might realize that with the probability of both events being 1/2 or smaller, the answer won't be 1/2
13	Fall 99/00	SAME	31	31	6			x	Measures of data - mode	Vocabulary question. Student knows what a mode is or they don't
14	Fall 99/00	SAME	33	33	7	x			Unit rate with decimals	Number sense says the answer can't be H or J, but H represents a common error. The answer choice of "not here" means the answer can't be guessed intuitively
15	Fall 99/00	SAME	39	39	7	x			Use proportions to complete a set of data	No intuition, student just has to work it out, though the larger answers feel improbable
16	Fall 99/00	SAME	44	44	8		x		Solve a 1-step equation with variable in the denominator	No intuition, student just needs to work it out (except answer should be larger than 1, so A is out)
17	Fall 99/00	SAME	45	45	7			x	Congruency, equilateral triangles, and perimeter.	A can be thrown out since it is smaller than the given quantity in the problem. The other choices are plausible
18	Fall 99/00	SAME	50	50	6	x			Adding decimals to the thousandths	No intuition, student just has to work it out.
19	Fall 99/00	SAME	67	67	5	x			Two step word problem	No intuition, student just has to work it out.
20	Fall 99/00	SAME	69	69	6	x			Dividing by a mixed number. Asking about procedure and not making a calculation	Only 1 answer choice reflects that 8 and 19 should be added to get a combined amount of fabric. Student then doesn't have to make determination about the rest of the problem
21	Fall 99/00	SAME	73	73	5	x			Reasoning from a table	No intuition, student just has to work it out.
22	Fall 99/00	SAME	76	76	5			x	Subtract decimals	No intuition, student just has to work it out.

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion of Test Adminstration - FALL 99 - FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
23	Fall 99/00	SAME	77	77	6			x	Volume of a rectangular prism from a net	No intuition, student just has to work it out.
24	Fall 99/00	SAME	78	78	7	x			Word problem involving percentages	Answer should be bigger than 240, so H, J, or K. Though choice G represents a common student error of 240*0.40 rather than 240/0.40
25	Fall 99/00	SAME	81	81	7			x	Sequence pattern recognition (as an expression)	Student can arrive at the correct answer by looking at either of the 2 terms. Doesn't necessarily have to handle the entire problem as intended
26	Fall 99/00	SAME	85	85	6			x	Measures of data - median (student must know how to handle an even number of data)	Good vocabulary problem with solid distractor answers.
27	Fall 99/00	SAME	86	86	8			x	Match linear graph to x,y data table	Only D and E show negative slope
28	Fall 99/00	SAME	88	88	8			x	Create a two-variable equation from a word problem	No intuition, student just has to think it through
					6.536					
1	Feb. 99/00	FEB NEW	3	3	5		x		Estimate a sum by rounding decimals	While it gives a range of values, a student really only has to do 12*3 to arrive at an answer
2	Feb. 99/00	FEB NEW	6	6	6		x		Adding with a negative integer	Not D since it is warmer, but the rest are plausible
3	Feb. 99/00	FEB NEW	17	17	7	x			Unit rate with decimals/fractions	No intuition, student just has to work it out.
4	Feb. 99/00	FEB NEW	23	23	6			x	Create a numerical expression from a word problem	No intuition. student just needs to think it through
5	Feb. 99/00	FEB NEW	25	25	7		x		Proportion - use of phrase "scale drawing" makes it 7th grade	Scale drawing is smaller, so cannot be J or K (but J does the correct value for a common mistake of 5*2 instead of 5/2)
6	Feb. 99/00	FEB NEW	26	26	5	x			Two step word problem with addition and division	No intuition, student just has to work it out.
7	Feb. 99/00	FEB NEW	27	27	8		x		Pythagorean Theorem	Choice A doesn't make a triangle and could be thrown out. The rest are plausible
8	Feb. 99/00	FEB NEW	28	28	8			x	Writing a linear function from a word problem	No intuition, student just has to work it out.
9	Feb. 99/00	FEB NEW	29	29	6			x	Measures of data - mode	Vocabulary question. Student knows what a mode is or they don't
10	Feb. 99/00	FEB NEW	30	30	7			x	Apply congruence of angles, perimeter of an isosceles triangle	No intuition, student just has to work it out.

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion of Test Administration - FALL 99 - FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
11	Feb. 99/00	FEB NEW	32	32	7		x		Comparing tabular data from a situation/linear graph	Should be proportional, B and E don't reflect that. Also need to check one data point (5,20) to get the correct answer of C
12	Feb. 99/00	FEB NEW	38	38	7			x	Geometry on a coordinate plane, isosceles triangles	C is the only answer with the correct y-coordinate
13	Feb. 99/00	FEB NEW	40	40	5			x	Division, fraction quotient	8/5 should put the answer between 1 and 2 (choices G and H), and G has the wrong denominator. F represents a reversal of divisor and dividend
14	Feb. 99/00	FEB NEW	41	41	5			x	Addition of decimals to the hundredths place	While the answer choice of "not here" makes it harder to immediately jump to an answer, the sum of the first two values given (85.43+21) is larger than choices B,C and D (without even adding the 3rd value)
15	Feb. 99/00	FEB NEW	43	43	8			x	Evaluate given a 2 variable equation	No intuition, student just needs to work it out (though choice A is probably too small given the values in the problem)
16	Feb. 99/00	FEB NEW	47	47	8			x	Create linear graph from data, not proportional	Only 2 choices (G and K) go through the first data point of (10,140)
17	Feb. 99/00	FEB NEW	48	48	6		x		Proportions	Answer should end in a 0, not an 8, so A is out
18	Feb. 99/00	FEB NEW	55	55	5			x	Adding decimals to the hundredth	If item prices end in .50, .75, and .75 (basically using just quarters), answer cannot end in .35 (choice A) or .90 (choice H)
19	Feb. 99/00	FEB NEW	56	56	5			x	Multiply a 4 digit number by a decimal	Answer has to be larger than 2400, so J and K only possible answer. If student knows 4800 is double 2400, without doing work, J is the answer
20	Feb. 99/00	FEB NEW	64	64	6		x		Subtracting decimals, problem deals with interest earned	Answer should end in .66, so A and C are out
21	Feb. 99/00	FEB NEW	66	66	8	x			Apply distributive property to an algebraic expression	Good question. First term eliminates no answer choices. 2nd term eliminates 2, answer not determined until student works the 3rd term
22	Feb. 99/00	FEB NEW	71	71	8		x		Pythagorean Theorem	A student can get this problem correct by knowing the hypotenuse is the longest side of a triangle and not doing Pythagorean theorem since only 1 answer choice is smaller than 13
23	Feb. 99/00	FEB NEW	72	72	7			x	Spacial reasoning of 3-D figures	Not sure how G and J make sense
24	Feb. 99/00	FEB NEW	74	74	7	x			Proportions that include decimals	Student should tell answer is smaller than 4, so J is wrong
25	Feb. 99/00	FEB NEW	75	75	7		x		Write an inequality from a word problem	50 is total and should be isolated, so A, B and E are only answers. B and E don't make sense since 10.5 is a rate. A only possible answer and student can answer this without knowing about inequalities

Harder Versus Easier TAAS Questions Presented In Grouping Of Inclusion of Test Administration - FALL 99 - FEBR. 2000 OR SAME On Both

Total # By Admin	Overall Test	Date of Test	Eval. Numb. Audit	# Order	Assign Grade Level	Early	Mid	Late	Any Comment Adding Context To Determination of Grade Level & Staging of Grade Level	Difficulty of question commentary
26	Feb. 99/00	FEB NEW	79	79	8	x			Scientific notation	Choices A and C are not in scientific notation
27	Feb. 99/00	FEB NEW	83	83	5			x	Subtracting decimals	No intuition, student just has to work it out.
28	Feb. 99/00	FEB NEW	84	84	6		x		Percentage of a whole	450 represents more than half (should be under). Answer choice of 50 is probably too low. Rest are reasonable
29	Feb. 99/00	FEB NEW	87	87	5			x	Multiply a whole number by a decimal. Though the use of the word "deductions" might make it an older grade question	No intuition, student just has to work it out, though choice J is the result of addition and can be eliminated
30	Feb. 99/00	FEB NEW	91	91	8			x	Create a two-variable equation from a word problem	No intuition, student just has to think it through
31	Feb. 99/00	FEB NEW	92	92	5			x	Subtract decimals to the hundredths	Answer has to be smaller than 1, so only A, B, or E
32	Feb. 99/00	FEB NEW	93	93	5			x	Order decimals to the hundredths	Only once choice (C) has the smallest value first. The remaining 3 values don't need to be considered to get the answer correct
					7.357				NOTE; Question "70" in original - same as question 78 thus not repeated	

1. A softball-throwing contest was held on field day. The top 4 distances were recorded in meters. Which lists the distances in order from shortest to longest?

SAME

A   53.257 m, 53.432 m, 54.97 m, 53.25 m
B   53.25 m, 54.97 m, 53.432 m, 53.257 m
C   53.25 m, 53.257 m, 53.432 m, 54.97 m
D   54.97 m, 53.432 m, 53.257 m, 53.25 m

2. An oil-drilling rig contains pipe that is 80 feet in length. During the first 36 hours of operation, the drill bit cut through the ground at a rate of −96 feet per hour. What was the location of the bottom of the well after 12 hours of drilling?

FALL

F   −288 ft
G   −1062 ft
H   −1142 ft
J   −1152 ft
K   −3456 ft

3. Raúl selected 12 CDs at Joe's CD Exchange and Resale Store. The CDs were priced from $2.99 to $5.49. Which is a reasonable amount that he paid for the CDs before tax was added?

A   Less than $35
B   Between $35 and $70
C   Between $70 and $95
D   Between $95 and $110
E   More than $110

Feb.

4. Ann's car gets 27.5 miles per gallon of gas. How far can Ann drive if she uses 15 gallons of gas?

SAME

A   42.5 mi
B   137.5 mi
C   302.5 mi
D   380.5 mi
E   Not Here

5. Mary rode her bike $2\frac{1}{2}$ miles to the park, $5\frac{3}{4}$ miles to the store, and $2\frac{2}{3}$ miles to her grandmother's house. How many miles did she travel?

FALL

A $9\frac{1}{4}$ mi
B $9\frac{1}{2}$ mi
C $9\frac{2}{3}$ mi
D $9\frac{11}{12}$ mi
E   Not Here

6. The lowest temperature on April 11 in Nome, Alaska, was −34°C during an arctic cold front. The sunlight during the day warmed the temperature by 18°C. What was the temperature then?

Feb.

A   −16°C
B   −24°C
C   −26°C
D   −52°C
E   Not Here
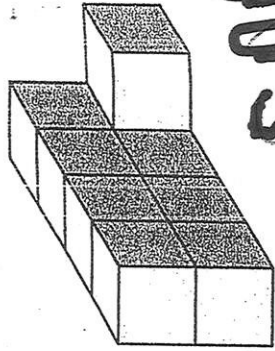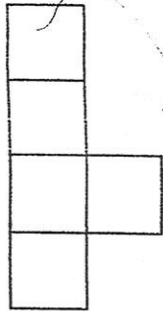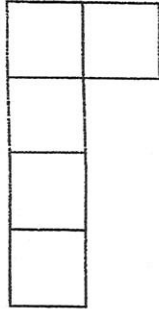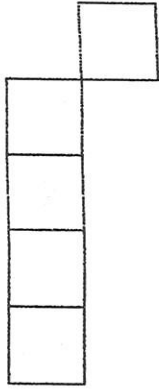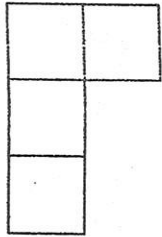
8 The graph shows the number of each type of vehicle sold by an automobile dealer.

Dealer Vehicle Sales

Type of Vehicle: Sedan, Pickup, Van, Sport Utility Vehicle

Number of Vehicles Sold
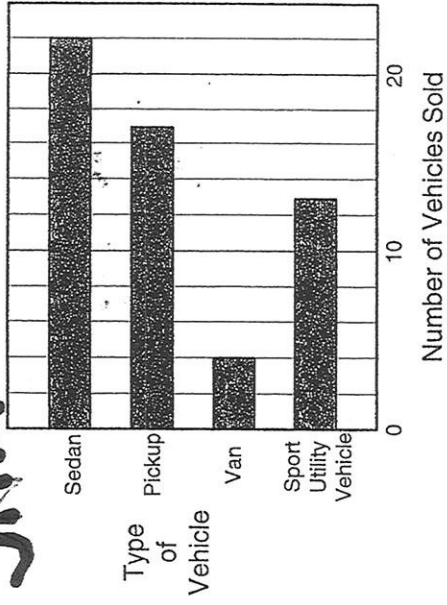
Which statement is supported by the data?

F Vans are the most expensive vehicle to buy.

G Sedans outsold pickups and sport utility vehicles combined.

H Fewer than 100 vehicles were sold during the period recorded.

J More 4-door vehicles were sold than 2-door vehicles.

K Pickups outsold vans by a ratio of 5 to 1 during this period.

9 The length of the equator is about 40,100,000 meters. How is this length expressed in scientific notation?

A 4.01×10^{-7} m

B 4.01×10^{-6} m

C 4.01×10^{6} m

D 4.01×10^{7} m

7 The solid figure is built with cubes. Which could represent the shape of the solid figure when viewed from directly above?

A

B

C

D

10. Mr. Hernández bought his wife $3\frac{1}{2}$ dozen roses, which cost $22.80 per dozen. How much did the roses cost, not including tax?

SAME

F $68.40

G $77.40

H $79.80

J $89.80

K Not Here

11. Carlotta's Cafe had the following lunch specials listed.

Carlotta's Cafe

Menu	Price
Soup and Sandwich Combo	$5.25
Hamburger Basket	$5.99
Chicken Salad	$4.95
Lasagna	$6.25
Deluxe Brownie	$1.85

Which is the best estimate of the total cost of 1 soup and sandwich combo, 2 chicken salads, and 3 deluxe brownies, not including tax?

SAME

F $12

G $15

H $17

J $21

K $24

12. Clara had a full 24-ounce bottle of liquid hand soap. She filled a dispenser with $10\frac{3}{4}$ ounces of the soap. How much soap was left in the bottle?

FALL

A $13\frac{1}{4}$ oz

B $13\frac{3}{4}$ oz

C $14\frac{1}{4}$ oz

D $14\frac{3}{4}$ oz

E Not Here

13. Jamie's doctor advised her to take a vitamin supplement in which the number of units of vitamin A was at least $\frac{3}{4}$ the number of units of vitamin B. Which inequality expresses the relationship of A, the number of units of vitamin A, to B, the number of units of vitamin B?

FALL

A $A \geq \frac{4}{3}B$

B $A < \frac{4}{3}B$

C $A \geq B - \frac{3}{4}$

D $A \geq \frac{3}{4}B$

E $A < \frac{3}{4}B$

14 The Country Clipper Bus Line sets the ticket prices for various destinations using this formula.

$$p = 8.25 + 0.12d$$

Which is the best estimate of the ticket price, p, when the destination, d, is 460 miles away?

F $13

G $35

H $45

J $60

K $110

SAME

15 A formula showing the relationship between kilometers and miles is

$$K = 1.6M$$

where K represents the number of kilometers and M represents the number of miles. Which is the number of kilometers in 250 miles?

F 156.25 km

G 251.6 km

H 370 km

J 400 km

K Not Here

FALL

16 Each lunch served at a school cafeteria costs $0.68 to make. Which equation could be used to find C, the total cost to the cafeteria if m meals are served?

F $C = \dfrac{m}{0.68}$

G $C = m + 0.68$

H $C = 0.68m$

J $C = \dfrac{0.68}{m}$

SAME

17 Paula works for a tax accountant. She earns $42 for each tax return that she completes for a client. On the average, she can complete a return in $3\frac{1}{2}$ hours. At this rate, how much does Paula earn per hour?

F $6

G $12

H $14

J $21

K Not Here

FEB

18 Connie's Cookie House sells a gift box of chocolate chip cookies. The charge is 50¢ per cookie plus 75¢ for the gift box. Waylon bought a gift box of 1 dozen cookies for his aunt. Which equation could be used to find his cost, c, before sales tax was added?

A $c = 12 + 0.50 + 0.75$

B $c = 12(0.50)(0.75)$

C $c = 12(0.50 + 0.75)$

D $c = 0.50(12) + 0.75$
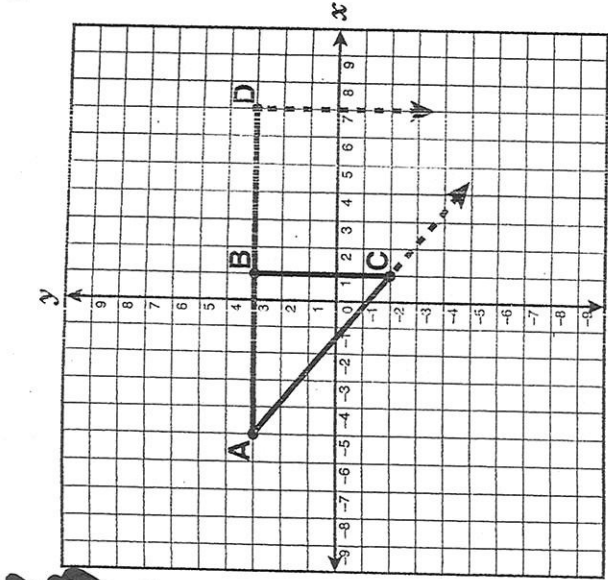
E $c = 0.50 + 12(0.75)$

SAME

21 A scuba diver had been exploring an area of underwater caves for about 15 minutes. The depth meter on his watch indicated he was at −173 feet. He decided to ascend 35 feet and then take a 10-minute break to be sure he didn't get decompression illness. What was his depth when he took his break?

A −208 ft

B −148 ft

C −142 ft

D −138 ft

E Not Here

22 Gerry has a rectangular picture that measures 4 inches by 6 inches. She wants to enlarge it for a new frame. The shorter side of the enlargement needs to be 10 inches. If the picture is proportional, what should be the length of the longer side?

F 12 in.

G 14 in.

H 15 in.

J 24 in.

23 Nora went to the post office to buy 33¢ stamps. The stamps were available in books of 25 stamps or books of 15 stamps. She purchased 2 books of 25 stamps and 3 books of 15 stamps. Which equation could be used to find the total cost, c, of her purchase?

A $c = 0.33(2 + 3)(25 + 15)$

B $c = 2(25)(0.33) + 3(15)(0.33)$

C $c = 0.33(2 + 3)(25)(15)$

D $c = 0.33(25 + 15)$

E $c = 0.33(2)(3)(25 + 15)$

19 The diagram shows △ABC and line segment AD.

Where should point E be located on the grid so that △ABC and △ADE are similar?

A (2, −4)

B (6, −5)

C (7, −2)

D (7, −7)

20 Lily had a game with 2 groups of playing tiles. The first group of 24 tiles had all the letters of the alphabet except X and Z. Each tile had 1 letter on it. The second group of 10 tiles had the numbers 0 through 9, with 1 number on each tile. If Lily drew 1 letter tile and 1 number tile at random, what is the probability that she would draw a letter in her name and an odd number?

F $\dfrac{1}{16}$

G $\dfrac{1}{8}$

H $\dfrac{1}{4}$

J $\dfrac{1}{2}$

24 The frequency table shows the ticket sales for the movie *Over the Hill* on Saturday.

TICKET SALES	
Price of Ticket	Number of Tickets Sold
$2.25	10
$3.25	26
$4.50	19
$5.20	42
$6.50	33

Which ticket price was the mode?

F $3.25
G $4.50
H $5.20
J $6.50

25 A science textbook has scale drawings of several very small insects. The scale shows that 1 centimeter in the drawing represents 2 millimeters of actual length. What is the length of the scale drawing of a flea if the flea is actually 5 millimeters long?

F 0.4 cm
G 2.5 cm
H 4 cm
J 10 cm
K 25 cm

26 A florist uses 8 carnations, 3 lilies, 6 daisies, and 4 roses for a certain spring flower arrangement. Last week between 700 and 730 flowers were used to make these arrangements. About how many of these arrangements were made? :

A 20
B 25
C 35
D 40
E 45

27 Mack ran a 17-foot string of lights from the base of his house to the top of a 15-foot pole.

15 ft

17 ft
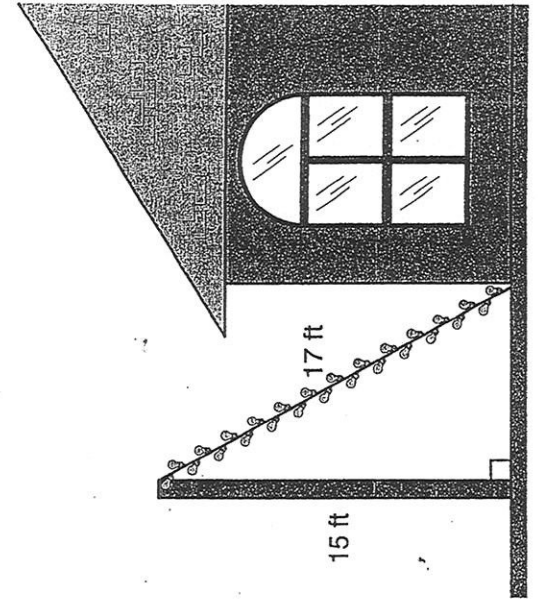
How far was the base of the pole from the house?

A 2 ft
B 4 ft
C 8 ft
D 16 ft

31 The average daily temperature for the first 6 days in July was recorded for the town of Grandville. The temperatures were 78°F, 75°F, 71°F, 66°F, 73°F, and 75°F. What was the mode of these temperatures?

F 66°F

G 72°F

H 73°F

J 75°F

SAME

28 Each month, a sporting-goods store pays $1.75 per square foot to lease 12,000 square feet of space in a building. The store must also pay 2% of the total sales to cover security and maintenance costs of the parking area. Which equation could be used to find c, the total cost of the lease for a month with a total amount of sales of s dollars?

F $c = (1.75 + 0.02)(12,000)s$

G $c = (1.75)(12,000)(0.02)s$

H $c = (1.75)(12,000) + 0.02s$

J $c = (12,000)(1.75 + 0.02s)$

K $c = (1.75)(12,000) - 0.02s$

FEBR.

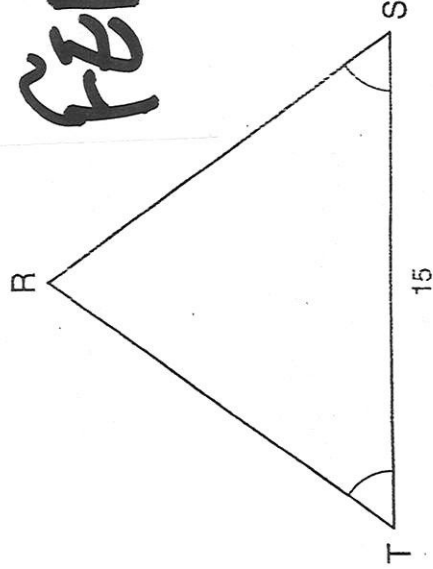**29** Gracie has scored 18, 21, 12, 18, 22, 20, 19, 18, 19, and 16 points in her last 10 basketball games. What is the mode of these scores?

F 17

G 18

H 18.3

J 18.5

FEBR.

30 △RST is an isosceles triangle with ∠S congruent to ∠T. The perimeter of the triangle is 41 units.

What is the length of side RS?

F 11 units

G 13 units

H 15 units

J 26 units

K Not Here

FEBR.

3b Martin went to a clearance sale at an art store. He was able to buy $4 worth of merchandise with $1 in cash. The graph shows the value of merchandise that could be purchased with up to $25 cash, before tax was added.

Art Store Sale
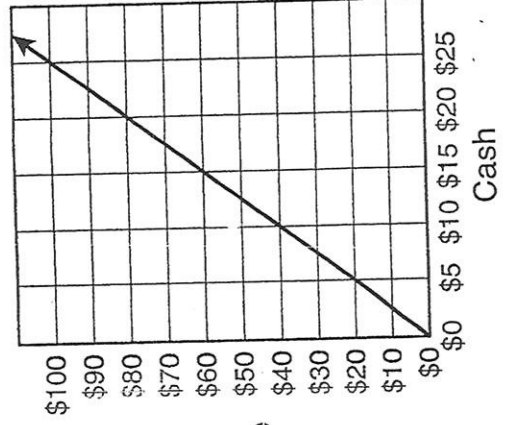
Which chart shows the same information as the graph?

A

Cash	Value of Merchandise
$5	$25
$10	$50
$15	$75

B

Cash	Value of Merchandise
$10	$50
$15	$55
$20	$60

C

Cash	Value of Merchandise
$5	$20
$15	$60
$25	$100

D

Cash	Value of Merchandise
$10	$20
$20	$40
$25	$50

E

Cash	Value of Merchandise
$5	$9
$15	$19
$25	$29

33 Elaine paid $1.49 for a roll of paper towels. If each roll contained 75 towels, what was the cost of each towel to the nearest cent?

F 1¢

G 2¢

H 20¢

J 50¢

K Not Here

SAME

34 Which is another way to express this pattern?

27, 81, 243, ...

A 9^3, 9^9, 9^{27}, ...

B 9^2, 9^3, 9^4, ...

C 3^4, 3^5, 3^6, ...

D 3^3, 3^4, 3^5, ...

FALL

35 An oatmeal container in the shape of a cylinder has a radius of 10 centimeters and a height of 14 centimeters. What is the volume of oatmeal when the container is $\frac{1}{2}$ full?

$[\pi \approx \frac{22}{7}]$

10 cm

Oatmeal

14 cm
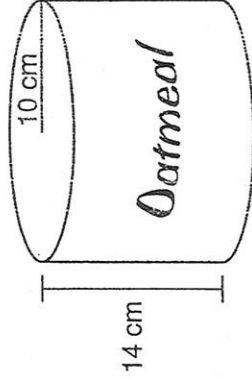
F 700 cm³

G 1100 cm³

H 2200 cm³

J 4400 cm³

FALL

36 The population of Austin in 1990 was approximately 465,000 people. By 1994 the population was estimated to be 10.4% higher than in 1990. About how many people lived in Austin in 1994?

A 400,000

B 500,000

C 600,000

D 800,000

E 900,000

FALL

37 The price of a 1-way airline ticket from City A to City B was advertised as $58. A traveler could purchase a round-trip ticket between the 2 cities for 1.85 times the 1-way price. How much would the traveler save by buying a round-trip ticket instead of a pair of 1-way tickets?

F $107.30

G $49.30

H $17.40

J $8.70

K Not Here

FALL

38 A triangle can be formed using points A and B on the grid and another point, C, that is not shown.

If angle ABC is a right angle, which coordinate pair identifies point C so that the triangle formed by A, B, and C is a right isosceles triangle?

A $(-3, -3)$

B $(-3, 0)$

C $(-3, -6)$

D $(-4, -8)$

FEBR.

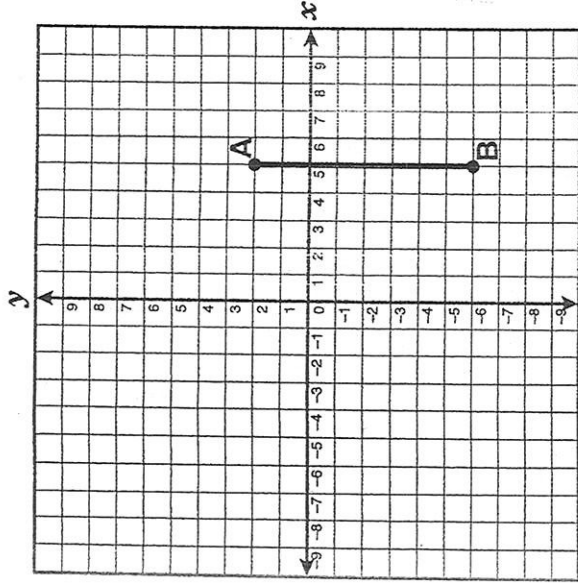**39** A kilometer is about 0.625 mile. The chart shows the equivalent distance in miles for selected distances in kilometers.

SAME

Distances

Number of Kilometers	Number of Miles
20	12.5
40	25
60	37.5
80	50
100	62.5

Which is the equivalent distance in miles for 120 kilometers?

F 75 mi

G 87.5 mi

H 112.5 mi

J 125 mi

K 192 mi

40 Hans is watching a thunderstorm. He knows that the number of seconds between the lightning flash and the thunder, divided by 5, equals his distance from the lightning in miles. If he counts 8 seconds between the lightning and the thunder, how far away is the lightning?

FEBR.

F $\frac{5}{8}$ mi

G $1\frac{3}{8}$ mi

H $1\frac{3}{5}$ mi

J 3 mi

K $6\frac{1}{4}$ mi

41 Malcolm spent $85.43 on wallpaper, $21 on paint, and $7.84 on brushes and other supplies for redecorating a bathroom. How much did he spend in all, not including tax?

FEBR.

A $114.27

B $103.27

C $95.37

D $93.48

E Not Here

42 Erika used $14\frac{1}{2}$ yards of material to make 3 identical costumes for the drama club's spring play. How many yards of material were needed for each costume?

FALL

F $3\frac{5}{6}$ yd

G $4\frac{1}{2}$ yd

H $4\frac{5}{6}$ yd

J $29\frac{1}{6}$ yd

K Not Here

43 On days when pizza is being served, a school cafeteria manager plans the number of meals to prepare using the formula

$$m = 0.85s$$

where m is the number of meals and s is the number of students enrolled in the school. If the school has an enrollment of 352 students, which is a reasonable number of pizza meals prepared?

F 50
G 150
H 200
J 300
K 450

FEBR.

44 The amount of time that it takes to fill the empty tank of a 30-gallon water heater can be determined by the formula

$$t = \frac{30}{f}$$

where t is the time in minutes and f is the rate of water flowing into the tank in gallons per minute. If it takes 12 minutes to fill the tank, what is the rate of the water flowing into the tank?

A 0.4 gal per min
B 1.8 gal per min
C 2.5 gal per min
D 3.6 gal per min
E 4.2 gal per min

SAME

45 A garden shaped like a regular hexagon has 3 walkways that divide the garden into 6 triangles. All the triangles formed by the walkways are congruent and equilateral.
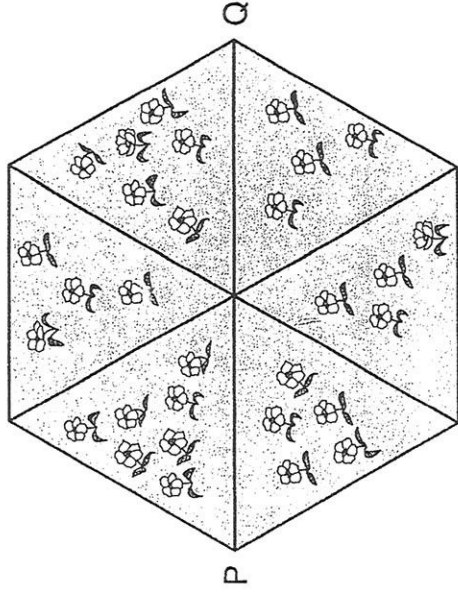
If the distance from point P to point Q is 15 meters, what is the perimeter of the garden?

A 7.5 m
B 22.5 m
C 30 m
D 45 m
E 112.5 m

SAME

46 A recipe indicates that 1 pound of ground meat will yield 5 servings of meat loaf. If s represents the number of servings and p represents the number of pounds of meat, which equation shows the relationship described by the recipe?

F $s = p - 5$
G $s = \frac{5}{p}$
H $s = p + 5$
J $s = 5p$
K $s = \frac{p}{5}$

FALL

WM

A math club planned a banquet at a local restaurant. The restaurant agreed to charge $20 for the banquet room, plus $12 for each person attending. The chart shows the total cost for 10, 15, and 20 people attending the banquet.

Banquet Costs

Number in Attendance	Total Cost
10	$140
15	$200
20	$260

FEBR.

Which graph shows the same information as the chart?

Banquet Costs

F   Total Cost — Number in Attendance

Banquet Costs

G   Total Cost — Number in Attendance

Banquet Costs

H   Total Cost — Number in Attendance

Banquet Costs

J   Total Cost — Number in Attendance

Banquet Costs

K   Total Cost — Number in Attendance

51 The chart shows the number of tickets sold at a local movie theater.

Theater Ticket Sales

Time	Number of Tickets Sold	Price per Ticket
1:15 P.M.	300	$2.00
4:00 P.M.	215	$4.75
6:30 P.M.	289	$5.95
8:00 P.M.	300	$5.95

Which is the best estimate of the total amount of money collected for these sales?

F $1100

G $3400

H $3900

J $4400

K $5200

FALL

52 Shannon sells newspaper subscriptions that cost customers $11.50 per month. She receives $10 per day plus $1.50 for each subscription sold. How much money would she earn before taxes are deducted if she sells 79 subscriptions in 3 days?

A $102.00

B $118.50

C $140.00

D $148.50

E $160.00

FALL

48 In 40 baseball games Juan's team has scored 50 runs. If the team continues at this rate, how many runs could the team expect to score in a 160-game season?

A 128

B 170

C 200

D 250

FEBR.

49 Ben bought 3 pounds 8 ounces of chocolate-covered almonds, 2 pounds 6 ounces of chocolate-covered raisins, and 1 pound 5 ounces of jelly beans. How much candy did he buy?

A 7 lb 9 oz

B 7 lb 7 oz

C 6 lb 9 oz

D 6 lb 3 oz

E Not Here

FALL

50 In women's gymnastics there are 4 events: the floor exercise, the balance beam, the vault, and the uneven bars. The all-around competition score is determined by adding together each of the 4 individual event scores. Katya scored 9.375 on the floor exercise, 8.9 on the balance beam, 9.875 on the vault, and a perfect 10 on the uneven bars. What was Katya's all-around score?

F 27.15

G 37.15

H 38.15

J 38.25

K 39.05

SAME

55

Andy participated in a neighbor's garage sale. He sold 3 items: a picture frame for $8.50, a teapot for $3.75, and a set of 6 cups for $4.75. What were his total sales?

F $9.35

G $15.00

H $15.90

J $17.00

K $23.00

FEBR.

56

In July of each year for the last 3 years, Mrs. Flores has used about 1.5 times the amount of electricity that she used during March of that same year. Which is the best estimate of the amount of electricity she will use during July this year if the total use for March was 2400 kilowatts?

F 800 kilowatts

G 1200 kilowatts

H 1600 kilowatts

J 3600 kilowatts

K 4800 kilowatts

FEBR.

57

In Hilltown 2 out of every 21 people have a receding hairline. The town's total population is 4200 people. Which proportion can be used to find the number of residents, h, who have receding hairlines?

F $\dfrac{h}{2} = \dfrac{21}{4200}$

G $\dfrac{2}{21} = \dfrac{h}{4200}$

H $\dfrac{2}{21} = \dfrac{4200}{h}$

J $\dfrac{2}{2(21)} = \dfrac{h}{4200}$

FALL

53

The graph shows the types and amounts of solid waste produced in the United States in 1988.

Municipal Solid Waste — 1988
(millions of tons)

Paper (72)
Metals (15)
Glass (13)
Plastics (14)
Yard Wastes (32)
Other (21)
Food Wastes (13)
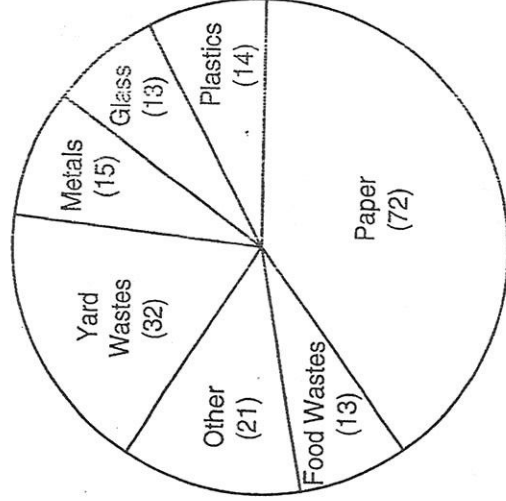
Total Weight = 180 million tons

What percent of the total solid waste was paper?

A 25%

B $33\frac{1}{3}\%$

C 40%

D $66\frac{2}{3}\%$

E 72%

FALL

54

A chemical compound is composed of 2 different elements. The first element makes up 12.25% of the compound. What percent of the compound is made up of the other element?

F 87.25%

G 87.75%

H 88.25%

J 88.75%

K Not Here

FALL

The graph below shows the average price of regular gasoline at Snaily's Super Stop for the first 6 months of 1994.

Average Gas Prices

Price per Gallon — $1.20, $1.10, $1.00, $0.90, $0.00

Month — Jan Feb Mar Apr May Jun

Which of the following statements is supported by the data in the graph?

F The price of gasoline will eventually become too high for most people to afford.

G Overall, the average price of gasoline increased from January to June.

H The greatest 1-month increase in the average price of gasoline occurred between January and February.

J The largest 1-month decrease occurred between May and June.

K The average price per gallon of gasoline was not below $1.00 during any of these months.

58
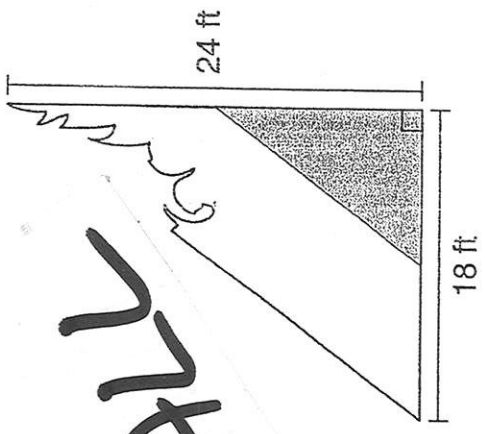
A triangular sail on a sailboat was damaged in 1 corner. The owner had the sail cut down to make a new sail that was $\frac{1}{2}$ the height and $\frac{1}{2}$ the length of the base of the old sail. He planned to use the new sail on a smaller boat.
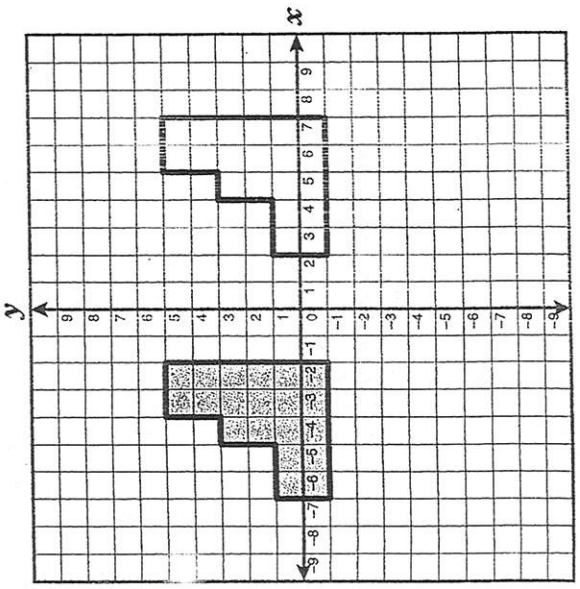

24 ft

18 ft

What is the area of the new sail?

A 54 ft²

B 108 ft²

C 216 ft²

D 432 ft²

59

Moving the shaded figure to exactly cover the unshaded figure would be an example of —

F symmetry

G translation

H rotation

J reflection

Before releasing a rescued whale into the ocean, a marine biologist attached a radio transmitter to it. A helicopter following the radio signal is directly above the whale at an altitude of 85 meters. According to the transmitter, the whale is located 46 kilometers from the shoreline at a depth of −28 meters. What is the whale's distance from the helicopter?

A 57 m

B 63 m

C 67 m

D 113 m

E Not Here

Zip candy bars cost $0.59 at Grover's Grocery. The store owner buys the same candy bars from a wholesale outlet at a price of $0.38 each. How much profit will the store make on Zip bars if it sells 10 bars each day for 6 days?

A $2.10

B $5.90

C $12.60

D $13.40

63 Daniel works at a premium-service car wash for $4 per hour. He also gets a bonus of $1.50 for each car he vacuums and $2 for each car for which he cleans the windows. Last Saturday he worked 8 hours, vacuumed 6 cars, and cleaned the windows of 14 cars. Which equation could be used to find T, the total amount he earned at the car wash on Saturday?

F $T = 8 + 6(1.50) + 14(2)$

G $T = 8(4) + 20(3.50)$

H $T = 8(4) + 6(2) + 14(1.50)$

J $T = (8 + 6 + 14)(4 + 1.50 + 2)$

K $T = 8(4) + 6(1.50) + 14(2)$

64 Lisa put $455 into an interest-bearing savings account. After 1 year there was $481.66 in the account. If she made no deposits or withdrawals during that year, how much interest did Lisa's account earn?

A $25.34

B $25.66

C $26.34

D $26.66

E $34.66

65 Mr. Park measured the rectangular game room in his house so that he could buy tile to cover the floor. The room was 15 feet wide and 18 feet long. Each individual tile had an area of 2.25 square feet. How many floor tiles were needed to exactly cover the game room floor?

F 48

G 66

H 120

J 145

K 270

66 Which expression is equivalent to $4(2y - 3 + 2a)$?

F $8y - 3 + 2a$

G $8y - 12 + 2a$

H $8y - 12 + 8a$

J $8y + 12 + 8a$

67 Raymond and his mother picked all the peaches from their tree to make peach preserves. They used 15 peaches for each jar of preserves. They made 12 jars of preserves and still had 40 peaches left over. How many peaches did they get from their tree?

A 140

B 180

C 220

D 495

E 612

68 Mr. Kramer has a set of 130 student essays to grade. Each essay is from $1\frac{1}{2}$ to $3\frac{1}{2}$ pages long and takes from 15 to 18 minutes to grade. Mr. Kramer has already spent 6 hours grading essays. Which could be the number of essays that he has left to grade?

F 124

G 108

H 75

J 52

K 21

7 Mrs. Freeman, the drama teacher, drew the following diagram for her stage manager.

How far was the stool from the table?

A 12 ft

B 16 ft

C 18 ft

D 36 ft

6 Camilla bought 8 yards of fabric at the regular price and 19 yards of the same fabric on sale. She needs $2\frac{1}{4}$ yards of the fabric to make 1 costume for the school play. Which expression could Camilla use to determine how many costumes she could make with the fabric she has?

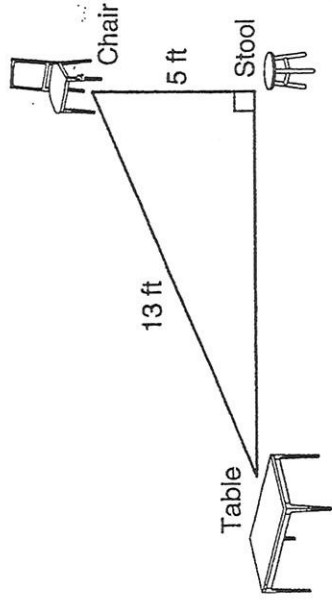F $(19 - 8) \times 2\frac{1}{4}$

G $(8 + 19) \div 2\frac{1}{4}$

H $(19 \times 2\frac{1}{4}) + 8$

J $(19 - 2\frac{1}{4}) + (8 - 2\frac{1}{4})$

K $(8 \times 19) \div 2\frac{1}{4}$

The chart shows times in various U.S. cities when it is 12:00 NOON in New York City.
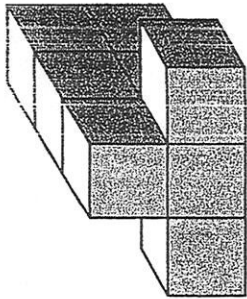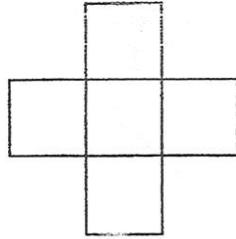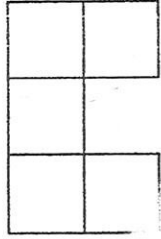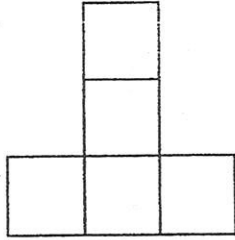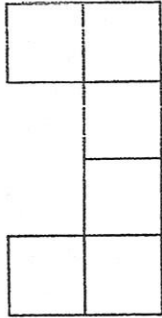
Time in U.S. Cities

City	Time (Standard)
New York City, NY	12:00 NOON
Los Angeles, CA	9:00 A.M.
Minneapolis, MN	11:00 A.M.
Tampa, FL	12:00 NOON
Dallas, TX	11:00 A.M.
Boise, ID	10:00 A.M.
Honolulu, HI	7:00 A.M.
Nome, AK	8:00 A.M.

Which of the statements is **not** supported by the data?

A The latest time of day shown on the chart is 12:00 NOON.

B Dallas is in the same time zone as Chicago.

C It will be 12:00 NOON in Los Angeles before it will be 12:00 NOON in Nome.

D There is a 5-hour difference in time between New York City and Honolulu.

E Boise is not in the same time zone as Minneapolis.

(handwritten: SAME)

The bodies of an adult cricket and a nymph (young) cricket are proportional. An adult cricket is 9.0 centimeters long, and its wings are 3.6 centimeters long. A nymph is only 4.0 centimeters long. How long are the nymph's wings?

F 1.11 cm

G 1.6 cm

H 2.25 cm

J 8.1 cm

(handwritten: FEBR.)

The solid figure is built with cubes. Which could represent the shape of the solid figure when viewed from directly above?

*(handwritten: FEBR.)*

F

G

H

J

78 An hour of vacuuming or making beds uses 240 calories. This is 40% of the number of calories burned by jogging for 1 hour. What is the total number of calories burned by jogging for 1 hour?

F 60 calories

G 96 calories

H 600 calories

J 960 calories

K Not Here

79 The average length of a type of bacteria found on an apple was about 0.000000313 meter. How is this length expressed in scientific notation?

A 31.3×10^{-6} m

B 3.13×10^{-6} m

C 31.3×10^{-7} m

D 3.13×10^{-7} m

80 A video rental store must rent at least 150 videos per day at an average fee of $3 per day to cover its costs of operation. Which equation can be used to determine how much profit, p, the store will make from collecting $6000 in 7 days?

A $p = 6000 - (150)(3)$

B $p = 6000 - 7(3)$

C $p = 6000 - 7(150)(3)$

D $p = 6000 + (3)(150)$

E $p = \dfrac{6000}{(3)(150)}$

75 Dan buys dog food in 50-pound bags. He uses 10.5 pounds of food per week for his dogs. Which inequality could be used to determine w, the number of weeks 1 bag of dog food will last?

A $10.5w \le 50$

B $10.5 - w \ge 50$

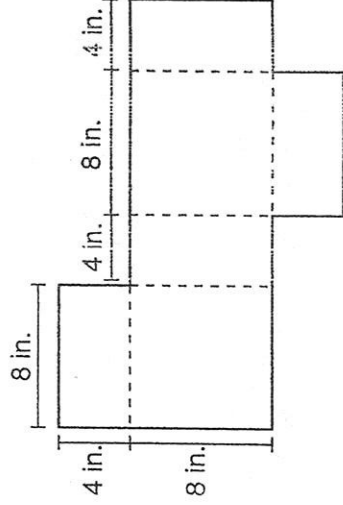C $50w \ge 10.5$

D $50 - w \ge 10.5$

E $10.5 + w \le 50$

76 Gloria spent $378.75 on books. She also spent $3500 on tuition and fees. If her tuition was $2658.32, how much were her fees?

A $462.93

B $741.68

C $842.32

D $1220.43

E Not Here

77 The figure below is a net of a rectangular prism. What is the total surface area?

4 in. | 8 in. | 4 in. | 8 in. | 4 in. | 8 in. | 8 in.

A 80 square inches

B 192 square inches

C 256 square inches

D 2048 square inches

83 Mitchell gave the clerk at a store $15.02 to pay for his groceries. The clerk gave him the correct change, $1.20. How much were Mitchell's groceries?

A $13.12

B $13.82

C $14.82

D $14.92

E Not Here

FEBR.

84 Carver High School has a total enrollment of 756 students. Approximately 35% of the students ride the school bus daily. Which is the best estimate of the number of students who ride the bus daily?

F 450

G 350

H 250

J 150

K 50

FEBR

85 During 4 nights of working as a waiter, Billy earned $9.50, $14, $9.50, and $11.50 in tips. What was the median amount of money Billy earned in tips for those 4 nights?

A $9.50

B $10.50

C $11.50

D $11.75

SAME

81 Which expression should be next in this pattern?

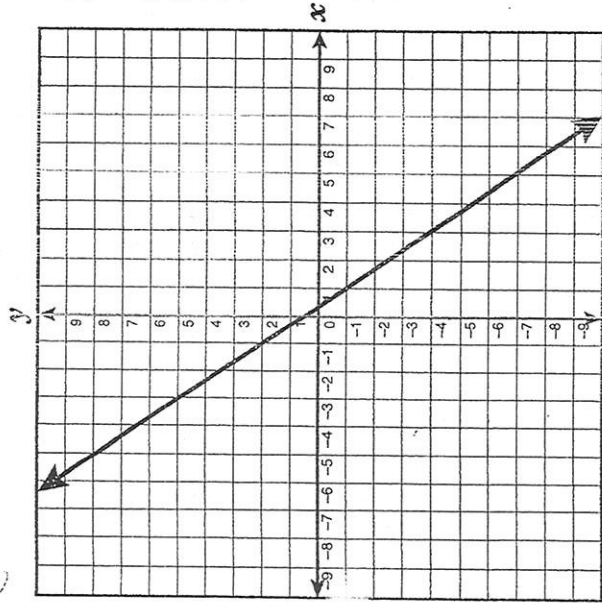$2a + 3, \ 4a + 6, \ 8a + 12, \ 16a + 24, \ldots$

F $10a + 15$

G $12a + 18$

H $24a + 36$

J $32a + 48$

SAME

82 Which ordered pair is on the line with the equation $3x + 2y = 1$?
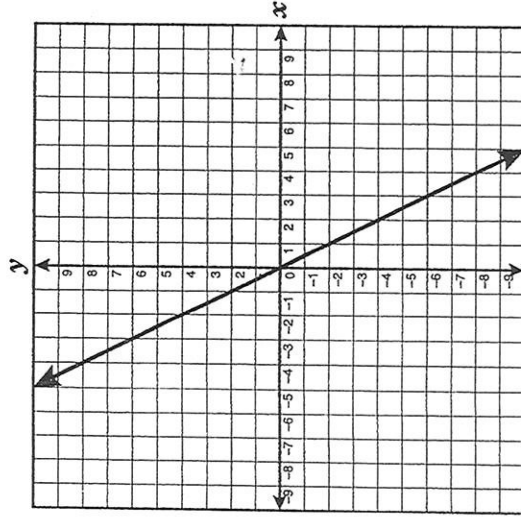

F (1, 1)

G (−5, 7)

H (−1, −1)

J (5, −7)

FALL

86

Which set of data is represented by the line shown on the graph?

SAMPLE

A.

x	y
-4	-6
-2	-4
0	-2
2	0
4	2

B.

x	y
-4	-8
-2	-4
0	0
2	4
4	8

C.

x	y
-4	-2
-2	0
0	2
2	4
4	6

D.

x	y
-4	8
-2	4
0	0
2	-4
4	-8

E.

x	y
-4	2
-2	1
0	0
2	-1
4	-2

90 A piece of gold foil was measured to be 0.00003045 meter thick. How is this number expressed in scientific notation?

A 3.045×10^{-9}

B 3.045×10^{-6}

C 3.045×10^{-5}

D 3.045×10^{6}

91 Brian got all his hair cut to a length of 1.5 centimeters. If his hair grows at a rate of 0.3 centimeter per week, which equation shows l, the length of his hair w weeks after he got it cut?

A $l = 1.5w + 0.3$

B $l = 1.5 + 0.3w$

C $l = (1.5 + 0.3)w$

D $l = 1.5 + \dfrac{w}{0.3}$

E $l = \dfrac{1.5}{0.3}w$

92 Anthony ran the 100-meter dash in 12.13 seconds. Manuel ran the 100-meter dash in 11.87 seconds. How much faster was Manuel's time than Anthony's time?

A 0.26 sec

B 0.34 sec

C 1.26 sec

D 1.74 sec

E Not Here

93 Dr. Mitchell weighed 4 children in kilograms. Which list shows the 4 weights in order from lightest to heaviest?

A 15.72 kg, 15.49 kg, 15.1 kg, 15.05 kg

B 15.1 kg, 15.05 kg, 15.49 kg, 15.72 kg

C 15.05 kg, 15.1 kg, 15.49 kg, 15.72 kg

D 15.1 kg, 15.72 kg, 15.05 kg, 15.49 kg

87 Kerry earns $9.75 per hour. If he works 40 hours in 1 week, how much will he earn before deductions?

F $390.00

G $380.00

H $360.75

J $49.75

K Not Here

88 Marlena has a housecleaning business. She charges $4.50 per room and gives a $5 discount to customers who provide their own cleaning supplies. Which equation could be used to find t, the total cost to a customer who has r rooms and who provides the cleaning supplies?

A $t = 4.50(r + 5)$

B $t = 4.50r - 5$

C $r = 4.50t + 5$

D $t = 4.50r + 5$

E $r = 4.50(t - 5)$

89 Mrs. Ortiz is cutting a wire $12\frac{1}{2}$ feet long into 5 equal pieces. How long will each piece be?

A $2\frac{2}{5}$ ft

B $2\frac{3}{7}$ ft

C $7\frac{1}{2}$ ft

D $17\frac{1}{2}$ ft

E Not Here