Section 2

Key

31. Hana wants to estimate the average number of pages in a cookbook. She randomly chooses 12 cookbooks from the cookbook section at her town's library and records the total number of pages, as shown.

349	208	620	495
384	243	130	395
215	128	93	190

$\frac{3450}{12} = 287.5$

Based on this sample, which is the BEST estimate of the mean number of pages in a cookbook?

A 229

B 288

C 418

D 527

32. Jenise wants to find out if the students at her school would support using school money to buy new band uniforms. Which survey will result in a random sample?

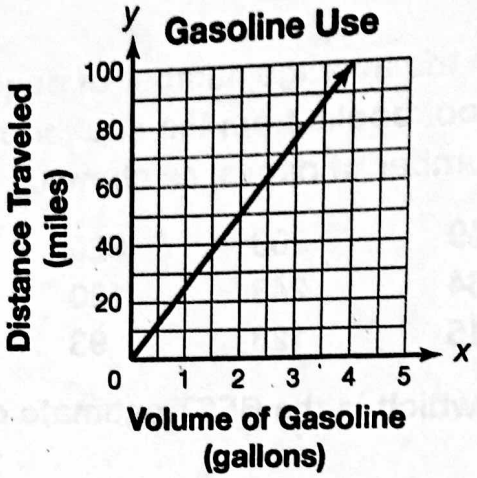
A She asks each student on her bus.

B She asks all band members in the school.

C She picks every fourth student that leaves the school on Tuesday.

D She picks 75 names at random, sends emails, and records those that return.

33. **Jen makes the graph below to determine how efficient her car is.**



What does the point (1, 25) on Jen's graph mean?

A The unit rate is 1, so the car uses 1 gallon of gas for every mile.

B The unit rate is 1, so the car travels 1 mile for every gallon of gas.

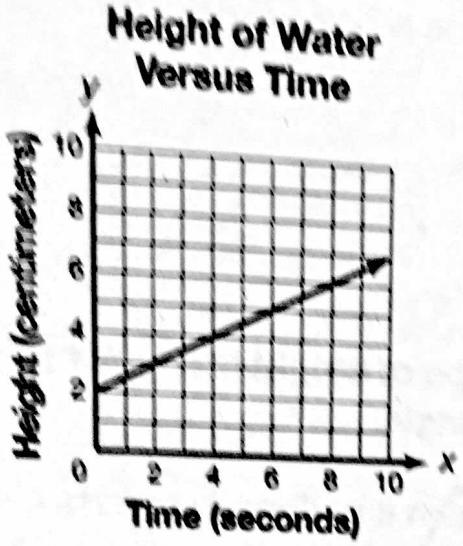
C The unit rate is 25, so the car uses 25 gallons of gas for every mile.

D The unit rate is 25, so the car travels 25 miles for every gallon of gas.

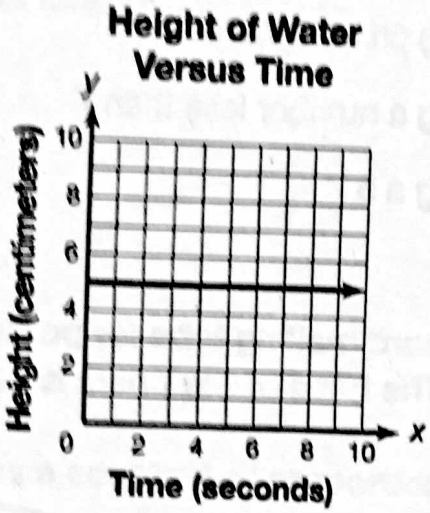
GO ON

34. Different containers are filled with water. Which graph shows a proportional relationship between the height of water in the container and the time in seconds?

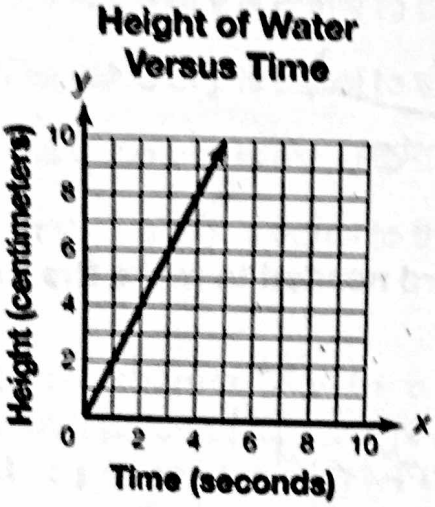
A



C

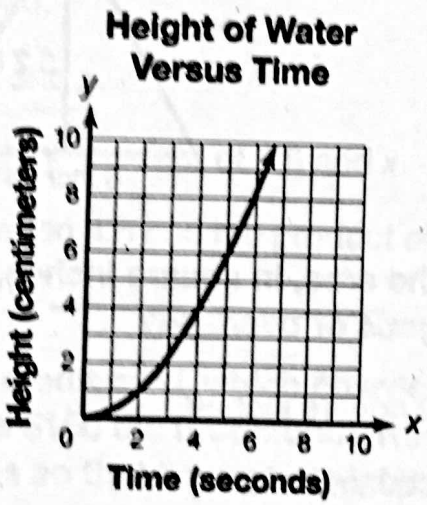


B



origin
line

D



35. **Peter rolls a number cube. Which outcome is certain?**

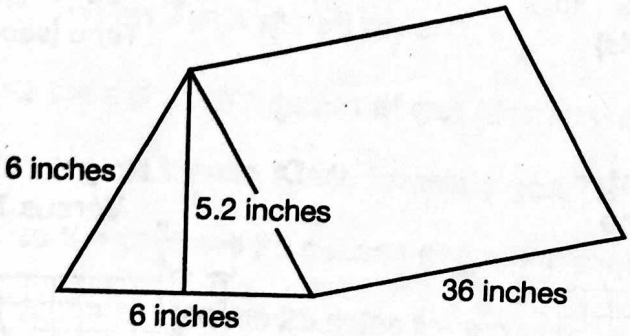
A rolling a number greater than 6

B rolling an even number

C rolling a number less than 7

D rolling a 5

36. **A cardboard mailing tube for posters is in the shape of a right triangular prism, as shown. The base of the prism is an equilateral triangle.**



What is the area, in square inches, of the cardboard needed to make the tube without gaps or overlaps?

A 463.2 square inches

B 648 square inches

C 663.6 square inches

D 679.2 square inches

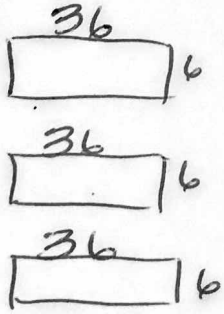
SA

2 Δ's = $2 \cdot \frac{1}{2}$ bh

$2 \cdot \frac{1}{2} \cdot 6 \cdot 5.2 =$ ~~60~~ 31.2

3 rect.

$l = 36$



$2 \cdot 3 \cdot lw$

$3 \cdot 36 \cdot 6 = 648$

679.2

GO ON

37. **Tammy knits custom scarves. Last year, she charged \$2.50 for each $\frac{1}{2}$ foot of scarf. This year, she increases the charge per half foot by 6%. How much does she earn this year to knit a scarf that is $4\frac{1}{2}$ feet long?**

(A) \$23.85

B \$22.50

C \$2.65

D \$1.35

$\frac{\#}{ft}$ $\frac{2.65}{\frac{1}{2}} = \frac{x}{4\frac{1}{2}}$

$4.5 \cdot 2.65 = .5x$

$\frac{11.925}{.5} = x$

$2.50 + .15 = \#2.65$

$2.50 \times .06 = 15$

$x = \#23.85$

38. **Which phrase describes a relationship that has a constant of proportionality of 4.6?**

A The value of y is equal to the sum of x and 4.6. → No

(B) The value of y is equal to the product of 4.6 and x. $y = kx$

C The value of y is equal to the sum of 4.6 and the product of 4.6 and x.

D The value of y is equal to the difference between 4.6 and the product of 4.6 and x.

39. **Mr. Flores charges \$530 for car repairs to his credit card, which charges no interest if paid in full within 9 months. He pays \$150 the first month. How much must he pay each month for the next 8 months so that he pays no interest?**

(A) \$47.50

B \$58.89

C \$66.25

D \$380.00

530
−150
380 balance
÷ 8
\$47.50 for next 8 months

ASSESSMENT 2

GO ON

40. **A bird flies $\frac{3}{4}$ mile east, $\frac{1}{8}$ mile west, $\frac{7}{8}$ mile east, then $\frac{3}{4}$ mile west. How far from its starting point does the bird end its flight?**

A 0 mile

B $\frac{3}{4}$ mile

C 1 mile

D $2\frac{1}{2}$ miles

$\frac{3}{4} + \frac{1}{8} + \frac{7}{8} + \frac{3}{4}$ ×2

$\frac{6 + 1 + 7 + 6}{8} = \frac{6}{8} = \frac{3}{4}$

E W

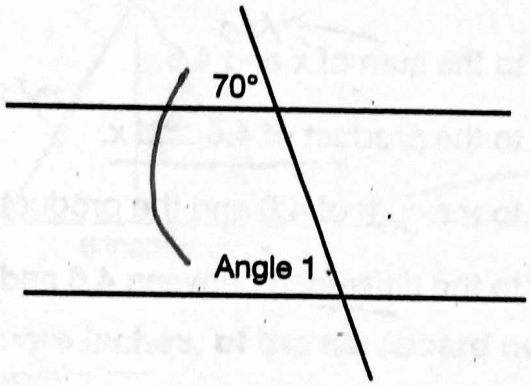
$\frac{3}{4} - \frac{1}{8}$

$\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$

$\frac{5}{8} + \frac{7}{8} = \frac{12}{8} - \frac{3}{4}$

$\frac{12}{8} - \frac{6}{8} = \frac{6}{8}$

41. **A bicycle path crosses over two parallel jogging trails, as shown.**



What is the measure of Angle 1?

A 20° because it is complementary to the given angle

B 70° because it is a corresponding angle to the given angle → holds same position

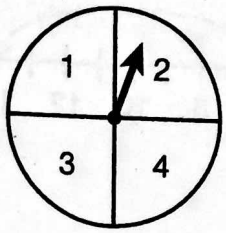
C 70° because it is a vertical angle to the given angle

D 110° because it is supplementary to the given angle

* top of ll line
* left of transversal

GO ON

42. **Veronica uses the spinner shown.**



P(3, H)

$\frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8}$

$\frac{1}{8}$ of 500 $= \frac{500}{8} = 6$

She spins the spinner and tosses a coin 500 times. What is a reasonable prediction for the number of times that the coin will land heads up and the spinner will land on 3?

A 3

B 8

C 63

D 250

43. **What is the difference of $-\frac{7}{12} - -\frac{8}{9}$?**

A $-\frac{53}{36}$

B $-\frac{11}{36}$

C $\frac{11}{36}$

D $\frac{53}{36}$

$3 \times -\frac{7}{12} + \frac{8}{9} \times \frac{4}{4}$

$3 \times \frac{-21+32}{36} = \frac{11}{36}$

$32 - 21 = 11$

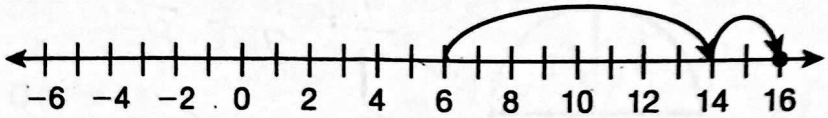
ASSESSMENT 2

GO ON

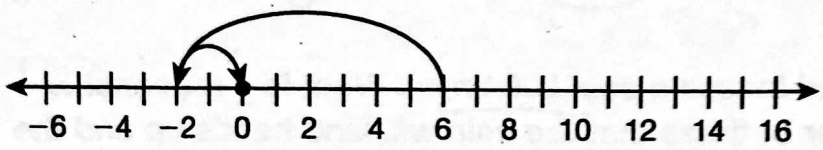
Add opposite so 6+8+2

44. Which number line represents 6 − (−8) + 2?

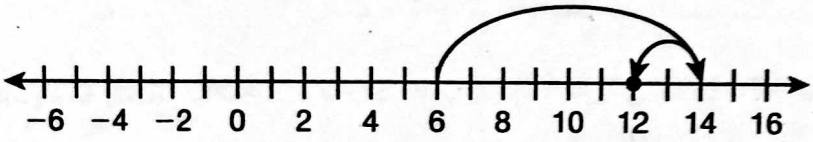
A



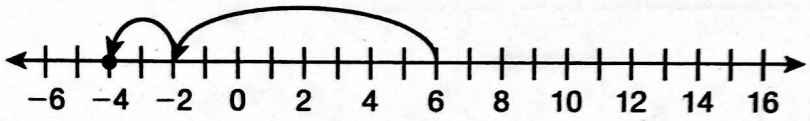
B



C



D



45. The table below shows the relationship between the number of flowers sold and the money Aki earns.

$y = kx$

$50 \quad k = y/x$

Flower Sales

Number of Flowers Sold	Earnings (dollars)
3	4.50
6	9.00
9	13.50
12	18.00

$4.50/3 = 1.50$

$9/6 = 1.50$

$13.50/9 = 1.50$

$18.00/12 = 1.50$

What is the constant of proportionality for the flower sales?

A 1.5

B 2

C 3

D 4.5

GO ON

46. **Connie read 12 more pages than Eric. Nan read 3 times as many pages as Connie. Nan read 57 pages. Which equation would you solve to find the number of pages Eric read?**

A $3x + 12 = 57$

B $x + 3(12) = 57$

C $x + 12 = 57(3)$

D $3(x + 12) = 57$

Nan = Nan

find x represents # pages Eric read.

47. **The student council is selling flowers for a fundraiser. Each flower is tied with ribbons. The lengths of the each color of ribbon are recorded in the table.**

Lengths of Ribbons in Inches

Maroon	Gold
12, 15, 18, 14, 15, 12, 10	14, 17, 15, 11, 16, 16, 14

Which is TRUE about the difference in the medians?

A It is 0.5 times the IQR for the gold ribbons.

B It is 2 times the IQR for the gold ribbons.

C It is 3 times the IQR for the maroon ribbons.

D It is $\frac{1}{3}$ times the sum of the IQRs for the gold and maroon ribbons.

GO ON

48. Jenna has a rope that is $8\frac{7}{8}$ feet long. She cuts the rope into pieces that are $1\frac{3}{4}$ feet long. How many pieces will she have that are $1\frac{3}{4}$ feet long?

A 15

B 6

C 5

D 1

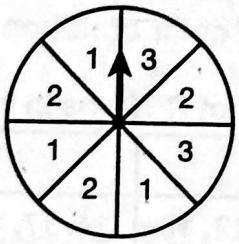
$8\frac{7}{8} \div 1\frac{3}{4}$

$\frac{71}{8} \div \frac{7}{4}$

$\frac{71}{82} \cdot \frac{41}{7} = \frac{71}{14} = 5.071$

50,5

49. The spinner shown is equally divided into 8 parts.



What is the probability of spinning a 3 on the spinner?

A 0.125

B 0.25

C 0.375

D 0.75

$P(3) = \frac{\text{Fav}}{\text{Poss}} \quad \frac{2}{8} = \frac{1}{4} = .25$

50. Three-fourths of the students at Washington Junior High play sports. There are 510 students who play sports. Which equation would you use to find the TOTAL number of students s at the school?

X = Total # student

A $\frac{3}{4} \times 510 = s$

B $\frac{3}{4} \times s = 510$

C $s \div \frac{3}{4} = 510$

D $\frac{3}{4} \div s = 510$

So $\frac{3}{4}X = 510$

↑ sports ↑ sports

GO ON

51. **Paul jumped $3\frac{1}{6}$ feet farther than Jill. Paul's jump was 8 feet total. Which equation would you use to find distance *j* Jill jumped?**

Jill = j

$(j + 3\frac{1}{6}) = 8$ ft

j: Paul's distance; $3\frac{1}{6}$: Paul's distance

A $3\frac{1}{6} - j = 8$

B $3\frac{1}{6} \times j = 8$

C $3\frac{1}{6} \div j = 8$

(D) $3\frac{1}{6} + j = 8$

52. **How many different triangles can be drawn with side lengths of 15 centimeters, 28 centimeters, and 12 centimeters?**

Sides

2 smaller lengths > longest length

$12 + 15 > 28$

27 NO 28

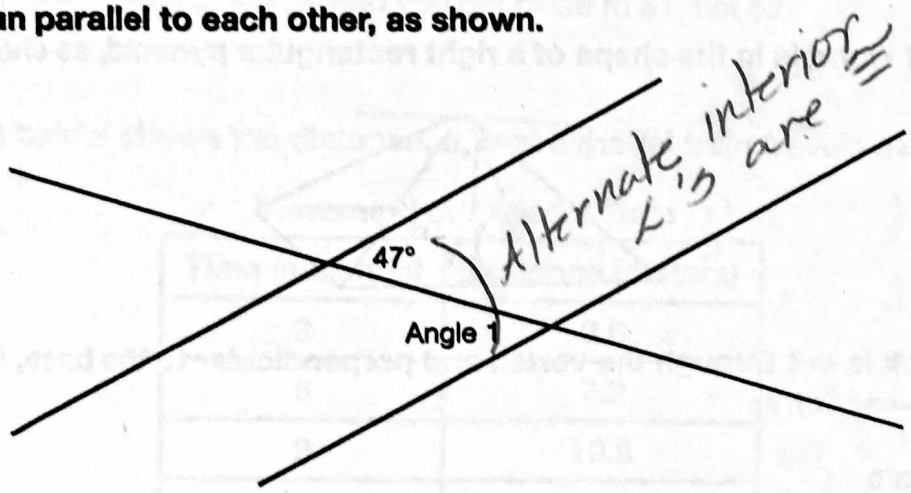
(A) 0

B exactly 1

C exactly 2

D infinitely many

53. **Tavi's company paints the lines in a store's parking lot. The lines between parking spaces run parallel to each other, as shown.**



What is the measure of Angle 1?

A 43° because it is complementary to the given angle

B 47° because it is a corresponding angle to the given angle

(C) 47° because it is an alternate interior angle to the given angle

D 133° because it is supplementary to the given angle

ASSESSMENT 2

GO ON

54. **Which fraction is a rational number because of the reason given?**

A $\frac{7}{8}$; its decimal form repeats. NO .875

B $\frac{6}{14}$; its decimal form repeats. yes .42857142 starting over

C $\frac{1}{12}$; its decimal form terminates. NO .08$\overline{3}$ repeats

D $\frac{1}{13}$; its decimal form neither terminates nor repeats. NO .076923

irrational #'s cannot be fractio form

55. **Which expression is equivalent to 12.8 − 3s + 15.5 + 8s?**

A −2 + 5s

B 5s + 28.3

C 33.3s

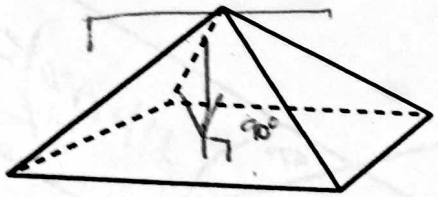
D 27.3 + 5s

5s + 28.3

integer rules combining like terms

$$\begin{array}{r} 15.5 \\ +\ 12.8 \\ \hline 28.3 \end{array}$$

56. **A block of wood is in the shape of a right rectangular pyramid, as shown.**



If the block is cut through the vertex and perpendicular to the base, describes the cross-section?

A a square

B a triangle

C a rectangle that is not a square

D a parallelogram that is not a rectangle

GO ON

57. **The temperature has changed by −8.4°F over the last 1.5 hours. What does the quotient of −8.4 ÷ 1.5 represent?**

$\frac{-8.4}{1.5} = \frac{x}{1 \text{ per } 1 \text{ hr}}$

A the total change in temperature

B the number of hours it took to decrease by 8.4°F

C the average change in temperature each hour

D what the change in temperature actually felt like

58. **The rent for an office space is $638.30 per month. The office is $316\frac{1}{2}$ square feet in area. Kayla says that the monthly cost per square foot to rent the office is a little more than $2. Is her answer reasonable? Explain.**

A Yes, multiply 316 by 2 and you get $632, which is a little less than $638.30.

B Yes, multiply 638 by 2 and you get close to $1300.

C No, divide 316 by 2 to get 158, which is not close to $632.

D No, divide 632 by 2 × 316, and you get close to $1, not $2.

$\frac{638.30}{316.5} = 2.016$

inverse operations

59. **The table below shows the distance, *d*, that a model train travels over time, *t*.**

$y = kx$

$k = \frac{y}{x}$

Movement of a Model Train

Time (seconds)	Distance (meters)
3	3.6
6	7.2
9	10.8
12	14.4

$k = 1.2$ so

$\frac{3.6}{3} = 1.2$

$\frac{7.2}{6} = 1.2$

$\frac{10.8}{9} = 1.2$

$\frac{14.4}{12} = 1.2$

Which equation represents the relationship of distance, *d*, and time, *t*, for the train?

A $d = 0.83t$

B $d = 3t$

C $d = 3.6t$

D $d = 1.2t$

ASSESSMENT 2

GO ON

60. **The measure of an angle is 4 times the measure of its complement. Larry writes an equation and finds the correct measure of each angle. Which shows the equation Larry could have written and the angle measures he could have found?**

∠1 + ∠2 = 90°
x + 4x = 90°
$\frac{5x}{5} = \frac{90}{5}$
x = 18
So, 4(18) = 72.

∠1 = x
* Check
72
+18
90°

A $4x + x = 180$; 36° and 144°

B $x + (x + 4) = 180$; 88° and 92°

C $4x + x = 90$; 18° and 72°

D $x + (x + 4) = 90$; 43° and 47°

61. **Students at one middle school will vote for the theme for the spring dance. In a random sample of students, 5 out of 10 students said they would vote for Hawaiian Luau, 3 out of 10 students said they would vote for Outta This World, and 2 out of 10 students had not yet decided. If all 690 students vote, which prediction is the MOST reasonable?** Hawaiian $\frac{1}{2}$ of 690 = 345

A Hawaiian Luau gets 414 votes, and Outta This World gets 276 votes.

B NO Hawaiian Luau gets 345 votes, and Outta This World gets 345 votes.

outta $\frac{3}{10} \times 690 = 207$

C NO Hawaiian Luau gets 483 votes, and Outta This World gets 207 votes.

D NO Hawaiian Luau gets 345 votes, and Outta This World gets 207 votes. - Does not account for the $\frac{2}{10}$ that are undecided.

62. **From a ledge on a rock wall, George climbs 30 feet. From there, he climbs −30 feet. What conclusion can you draw?**

A He is back where he started because 30 + (−30) = 0.

B He is below where he started because −30 feet represents going down.

C He is above where he started because he started by going up 30 feet.

D He can be either above or below because size of the ledge is unknown.

GO ON

3. **The price of a computer is marked down from $550 to $484 for a sale. The following week, the computer is marked down again by the same percent as during the week before. How much lower than the original price is the price after the second markdown?**

A $425.92

B $132.00

C $124.08

D $58.08

diff
original
* Discount

66
58.08
124.08

4. **Heather puts $200 in a savings account that earns simple interest. The interest rate is 5%. How long will it take Heather to have $250 in this account if she makes no other deposit or withdrawal?**

A 50 years

B 25 years

C 10 years

D 5 years

10 each year
So, about 5 years!

200
x.05
10
annually

ASSESSMENT 2

STOP