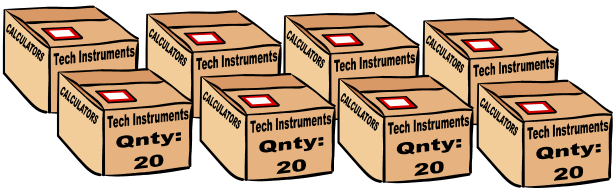
Diagnostic Test #2
Georgia High School Graduation Tests

Name:

1. A school district just received a shipment of calculators. They received 8 identical boxes of calculators. The shipping label shows that there are 20 calculators in each box. Which would be the most appropriate operation to determine the number of calculators received?



20 CALCULATOR × 8 BOXES = 160 CALCULATOR

A. addition
B. multiplication
C. subtraction
D. division

2. Which of the choices below shows another way to correctly express 4^3 ?

$4^3 = 4 \cdot 4 \cdot 4 = 64$

A. 12
B. 64
C. 43
D. 81

3. Which of the choices below shows another way to express 0.000000053 82 ?

.000 000 053 82 (1 2 3 4 5 6 7 8)

5.382×10^{-8}

A. 0.5382×10^{9}
B. 0.5382×10^{-9}
C. ~~5.382×10^{8}~~
D. 5.382×10^{-8}

4. Adrian borrowed $1500 for one year to buy new wheels for his car. He had to pay 7% interest on the money he borrowed. What was the total amount of interest he paid?

$1500 × .07 = $105.00

A. $ 105.00
B. $ 150.00
C. $ 214.28
D. $ 1,605.00

5. 07-25-97 is most likely a

A. phone number
B. social security number
C. address
D. date

6. If you saw a sign on I-16 while driving to Savannah that showed you were 85 miles away from your destination, which method would be the most appropriate to estimate how long it will take you to get to Savannah driving at 60 miles per hour?

A. a calculator
B. a computer
C. mental arithmetic
D. paper and pencil

7. A sales person sold $2300 in merchandise for the week. The sales person receives a 6% commission of her sales. How much did the sales person earn in commissions for the week?

$2300 * .06 = $138.00

A. $6.00
B. $138.00
C. $383.33
D. $2438.00

8. Which expression shows how to find the cost of 3 small popcorns and 4 small drinks at the movies, if the small popcorn costs a $2.00 and the small drinks cost $1.50?

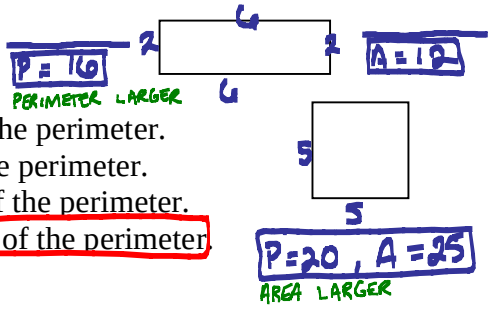
A. $2.00+1.50\times3+4$
B. $4\times2.00+3\times1.50$
C. $3\times2.00+4\times1.50$
D. $3\times1.50\times4\times2.00$

9. Rosa is buying three medium orders of fries from a restaurant. A medium order of fries costs $1.09 . What is the best estimate of the total cost before taxes?

$3 \times \$1.10 = \$3.30$

A. $ 3.00
B. $ 3.09
C. $ 3.30
D. $ 4.00

10. When investigating the area and perimeter of the same rectangle:



A. The value of the area is always greater than the value of the perimeter.
B. The value of the area is never greater than the value of the perimeter.
C. The value of the area is always the same than the value of the perimeter.
D. The value of the area is sometimes greater than the value of the perimeter.

11. Choose the situation below where using exact numbers would be expected.

A. Jane is a loan officer. She is filling out applications for a bank with the amount of money a client would like to borrow from the bank.
B. Derek is purchasing office supplies for his company. He is trying to determine how many pencils and pens to purchase for the office.
C. Jessica is purchasing napkins for a birthday party. She is determining how many napkins to purchase.
D. Bill checks his wallet to see if he has enough money after dinner for the movies.

12. The distance from Atlanta to Athens is 74 miles. Matt drove round trip 4 times last year. Estimate the total number of miles Matt drove last year on his trips.

ROUND TRIP $\approx$ 150 MILES

$4 \times 150 = 600$ M

A. 75 miles
B. 300 miles
C. 600 miles
D. 744 miles

13. At the health fair hosted at Phoenix High School, 200 raffle tickets were given out. John has 5 raffle tickets. If one ticket is selected to win the grand prize, what is the probability John will win the grand prize?

$$\frac{\#\text{ OF DESIRED OUTCOME}}{\#\text{ IN SAMPLE SPACE}} = \frac{5}{200} = \frac{1}{40} = 0.025 = 2.5\%$$

A. $\frac{1}{40}$
B. 2.5%
C. 0.025
D. All of the Above

14. A classroom has a total of 20 students. If the probability of randomly selecting a female student from the class is $\frac{1}{4}$ then how many of the students in the classroom must be male students ?

1/4 OF THE CLASS MUST BE FEMALE. SO, $\frac{1}{4} \cdot 20 = 5$ FEMALES. THE OTHER 15 REMAINING STUDENTS MUST BE MALES.

A. 3

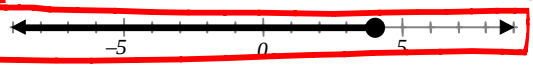
B. 5

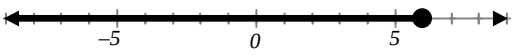
C. 15

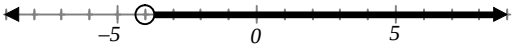
D Not enough information

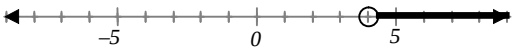
15. Given the inequality $6x \leq 24$, which graph shows the correction solution for x?

$\frac{6x}{6} \leq \frac{24}{6}$ $x \leq 4$

A. 

B. 

C. 

D. 

16. Four high schools in a local area were trying to compare the number of points scored during a football season to rate the top offensive teams. Which type of graph would best illustrate the comparison of the four high schools?

124 points South High School
94 points Central High School
52 points River High School
143 points Mountain High School

A. line graph

B. pictograph

C. circle graph

D. bar graph

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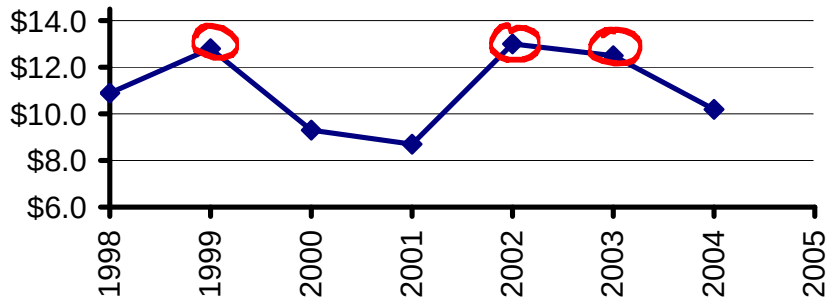
17. The operating budget for a small food side stand in a park should be under $12000 for the year. How many of the years illustrated below did the pizza food side stand go over budget?

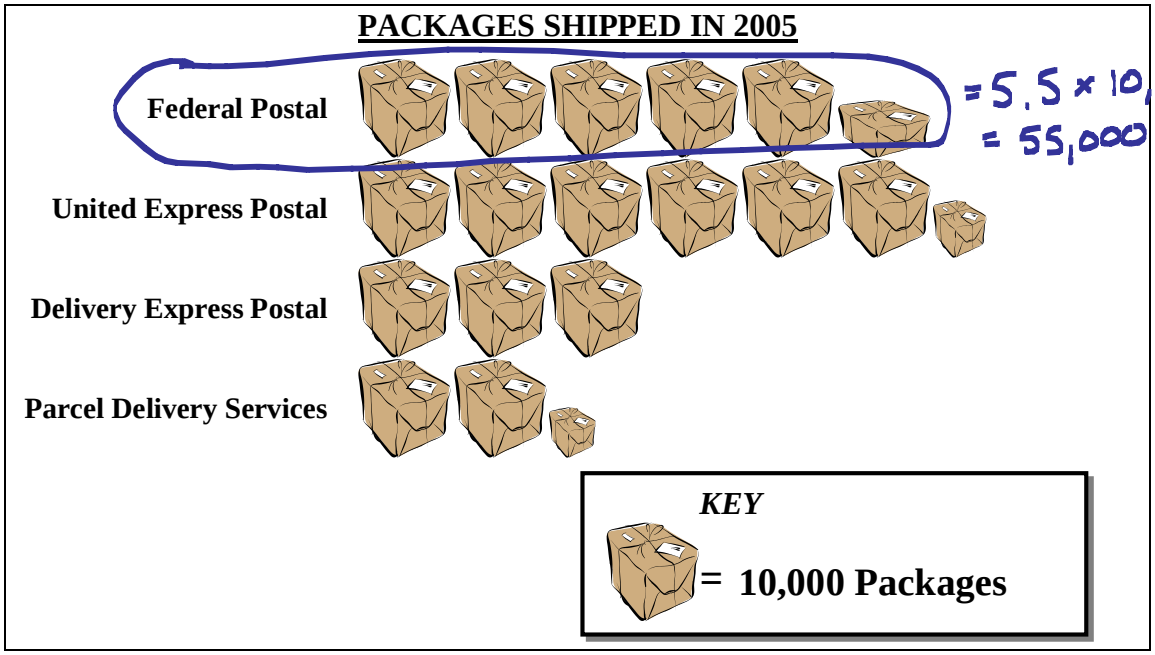
Yearly Operating Budget for Pizza Side Stand
(in thousands of dollars)



A. 2001
B. 2002
C. 3
D. 4

18. Read the following pictograph to answer the following question.

How many packages were shipped by Federal Postal in 2005?



A. 50,000
B. 50,500
C. 55,000
D. 60,250

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19. Use the package shipping chart to answer the following question:

Delivery Express Postal in the U.S.

Weight ► / Days ▼	Less than 5 lbs.	5 – 10 lbs.	10 -15 lbs.	15 -20 lbs.	20 -25 lbs.	25 -30 lbs.	30 -35 lbs.	35 -40 lbs.
Overnight	$12.00	$24.00	$50.00	$65.00	$75.00	$80.00	$85.00	$90.00
1-2 days	$8.50	$12.00	$18.00	$25.00	$30.00	$32.00	$36.00	$40.00
3 – 5 days	$5.50	$8.00	$12.00	$16.00	$22.00	$25.00	$35.00	$39.00
1 week	$3.50	$5.00	$10.00	$15.00	$20.00	$22.00	$30.00	$35.00

What would Delivery Express Postal charge to ship a 12 pound package in 1 – 2 days in the U.S.?

A. $8.50
B. $12.00
C. $18.00
D. $50.00

Use Jessica's Report card to answer the following:

Course	**Attendance** (days present)	**Grade**
Language Arts	38	73
Spanish I	42	81
Mathematics	42	93
World History	42	88
Biology	40	68
Physical Education	40	90

20. What was the **range** of Jessica's attendance?

A. 4
B. 25
C. 40.67
D. 42

HIGH − LOW
42 − 38 = 4

21. What is the **mean** of Jessica's grades?

A. 40.67
B. 82.17
C. 84.5
D. 25

MEAN = $\frac{(73+81+93+88+68+90)}{6}$
= 82.16̄

22. What is the **mode** of Jessica's attendance?

A. 4
B. 41
C. 40.67
D. 42

MODE: OCCURS THE MOST

23. What is the **median** of Jessica's grades?

A. 40.67
B. 82.17
C. 84.5
D. 25

68, 73, 81, 88, 90, 93
$\frac{81+88}{2} = \frac{169}{2} = 84.5$

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24. The best estimate for the length of a car is

A. 4 millimeters
B. 4 meters
C. 4 centimeters
D. 4 kilometers

25. If the length of a book has been rounded off to 28cm, what is the most accurate range that the book's actual length must fall between?

A. 27 and 29 cm
B. 28 and 29 feet
C. 27.5 and 28.5 feet
D. 27.5 and 28.4 feet

27.5 cm ≈ 28cm
28.4 cm ≈ 28cm

26. One gallon of paint covers 120 sq. ft.. Dexter determined he had to paint 450 sq. ft portion of a wall. How many gallons did he need to buy?

A. 1
B. 3
C. 4
D. 5

GALLONS OF PAINT / SQ FT COVERAGE: $\frac{1}{120} \times \frac{x}{450}$

$\frac{120x}{120} = \frac{450}{120}$

$x = 3.75$

27. An internet company has earned $230 in sales this week but today the company spent $280 on supplies. For the current week which number would represent their current financial balance for the week based on the two values above?

$230 − $280 = − $50

A. $230
B. − $280
C. − $50
D. $510

28. Jamar bought a cardboard box for moving purposes. The box has the dimensions of 18 inches long, 20 inches wide, and 22 inches tall. How many cubic inches is the capacity of the box?

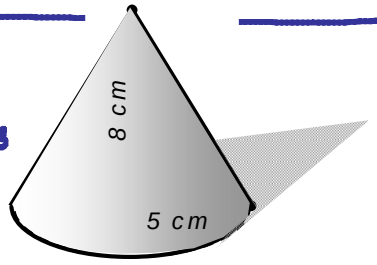
$V = l \times w \times h$
$= 18 \text{ in.} \times 20 \text{ in.} \times 22 \text{ in.}$
$= 7920 \text{ in}^3$

A. 60 cu. in.
B. 1844 cu. in.
C. 2392 cu. in.
D. 7920 cu. in.

29. Kristin wants to build a brick border around her entire garden. What would be the best unit of measure to use?

A. miles – TOO BIG
B. feet – JUST RIGHT
C. inches – TOO SMALL
D. acres – DOESN'T MEASURE LENGTH

30. Using the formula $V=\frac{\pi r^2 h}{3}$, find the volume of the following cone (use 3.14 for π).



$V \approx \frac{[3.14 \cdot (5cm)^2 \cdot (8cm)]}{3} = 209.\overline{3}\ cm^3$

A. 66.7 cm^3
B. 209.3 cm^3
C. 334.9 cm^3
D. 628 cm^3

31. Betsy is altering a picture on the computer. The original picture is 10 inches long by 8 inches wide. Betsy wants to reduce the size so that the length is only 6 inches. If the proportions are kept the same what would the width of the picture be after it has been reduced?

$\frac{\text{LENGTH}}{\text{WIDTH}}: \frac{10}{8} = \frac{6}{x}$

$\frac{48}{10} = \frac{10x}{10}$

$4.8 \text{ IN} = x$

A. 4 in.
B. 4.8 in.
C. 7.5 in.
D. 13.3 in.

32. The blue print has the scale 5/32 written near the legend. If a part measures 12 cm on the blue print what should the actual size of the part be?

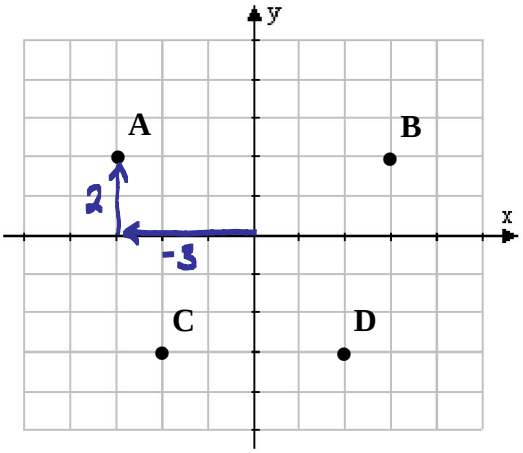
$\frac{\text{BLUE PRINT}}{\text{ACTUAL}}: \frac{5}{32} = \frac{12cm}{x}$

$\frac{384}{5} = \frac{5x}{5}$

$76.8 \text{ cm} = x$

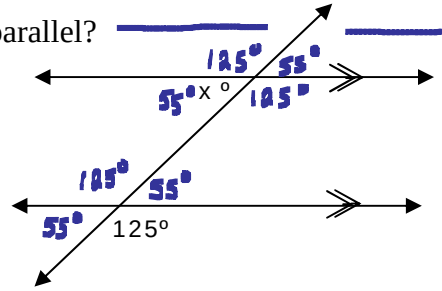
A. 0.15625 km
B. 1.875 cm
C. 13.3 cm
D. 76.8 cm

33. Which point is located at $(-3,2)$?



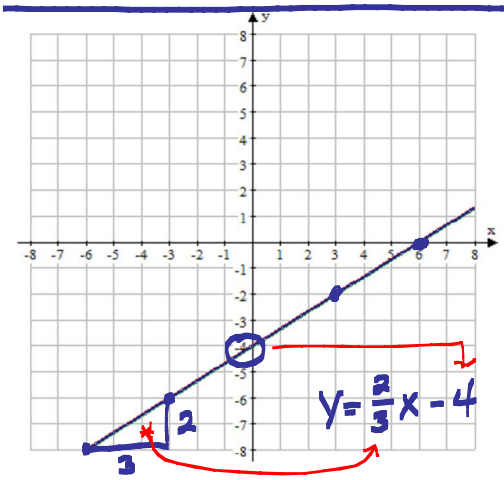
A. **A**
B. **B**
C. **C**
D. **D**

34. What would be the value of x if the two horizontal lines are parallel?



A. 125°
B. 35°
C. 55°
D. 65°

35. Which equation correctly describes the line graphed at the right?

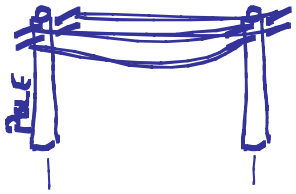


A. $y=\frac{2}{3}x-4$
B. $y=\frac{3}{2}x-4$
C. $y=\frac{2}{3}x+6$
D. $y=\frac{3}{2}x+6$

36. John is ordering carpet. He is planning to have new carpet put in his living room. When he orders the carpet which type of measure will he most likely need to know?

A. length
B. volume
C. perimeter
D. area

37. Two telephone poles sticking out of the ground could represent what type of line segments?



A. intersecting
B. collinear
C. perpendicular
D. parallel

38. Two complementary angles have a sum of:

A. 45º
B. 90º
C. 180º
D. 60º

39. Most soda cans are most like a(n) _____

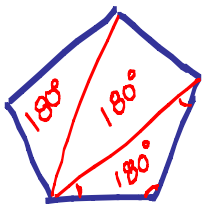
A. rectangular solid
B. cone
C. ellipse
D. cylinder

40. A student text book is most like a(n) _____

A. prism
B. pyramid
C. cylinder
D. hyperbola

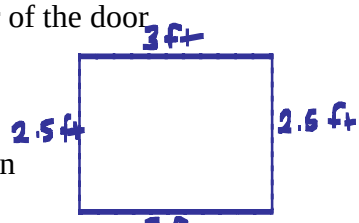
41. Jen wants to create a garden with five equal sides. What is the sum of the measures of the inside angles of the garden? _____

A. 360º
B. 180º
C. 540º
D. 420º



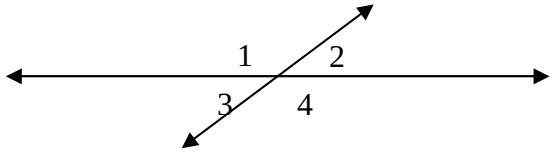
42. Jeff is creating a door for a crawl space to an attic. He needs to put weather stripping around the rectangular opening he is cutting. If the opening has the dimensions of 3 feet by 2.5 feet, how much weather stripping will Jeff need to line the perimeter of the door opening? _____

A. 5.5 ft
B. 7.5 ft
C. 11 ft
D. Not enough information



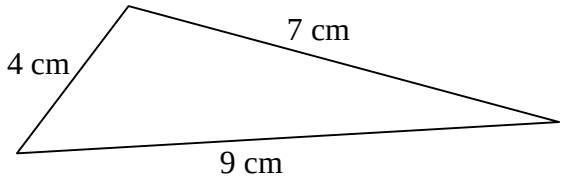
3 + 2.5 + 3 + 2.5 = 11 ft

43. In the following figure, what is the relationship between $\angle 1$ and $\angle 3$? _____



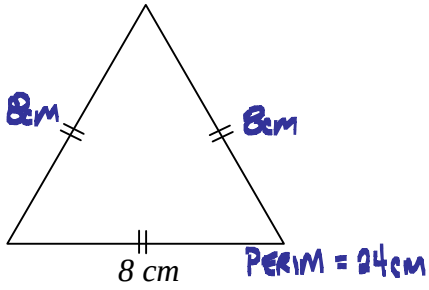
A. obtuse
B. complementary
C. acute
D. supplementary

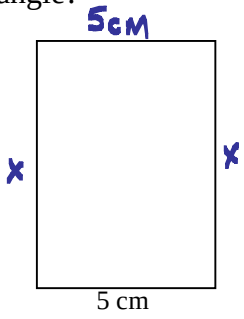
44. What kind of triangle is shown in the figure below?



A. equilateral
B. isosceles
C. similar
D. scalene

45. Below is an equilateral triangle. One side of the equilateral triangle measures 8 cm. The rectangle to the right has the same perimeter as the equilateral triangle. One dimension of the rectangle is 5 cm. What is the area of the rectangle?





PERIM: $24 = 5 + x + 5 + x$

$24 = 10 + 2x$

$-10 \quad -10$

$\frac{14}{2} = \frac{2x}{2}$

$7 = x$

IF THE UNKNOWN LENGTH IS 7CM THEN THE AREA IS:

$A = l \cdot w = 5 \times 7 = 35 cm^2$

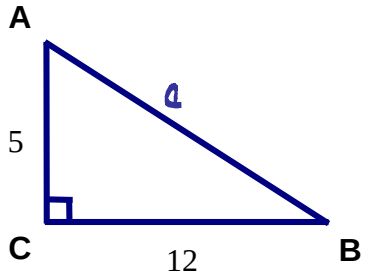
A. $7\ cm^2$
B. $64\ cm^2$
C. $24\ cm^2$
D. $35\ cm^2$

46. Find the numerical value of $2 + 3x^2 - 8x$ when x = 4.

A. 18
B. 48
C. 26
D. 50

$2 + 3(4)^2 - 8(4) =$
$2 + 3(16) - 8(4) =$
$2 + 48 - 24 =$
$50 - 24 = 26$

47. Find the length of $\overline{AB}$ on the following triangle.



$a^2 + b^2 = c^2$
$5^2 + 12^2 = c^2$
$25 + 144 = c^2$
$\sqrt{169} = \sqrt{c^2}$
$13 = c$

A. 13
B. 17
C. 30
D. 60

48. Rachel has hired a carpet cleaning service to clean her carpets. The cleaning service charges $15.00 per room. Rachel wants 8 room cleaned. She has a coupon for $10.00 off the cleaning service. Which of the expression below shows how Rachel would calculate her total bill?

(8 ROOMS × $15.00) − $10.00 COUPON

A. $15^8 - 10$

B. $15 \times 10 - 8$

C. $(15 \times 8) - 10$

D. $(15 - 10) * 8$

49. Completely simplify the following algebraic expression.

$$\frac{8a + 24b}{8}$$

$= \frac{8a}{8} + \frac{24b}{8}$

$= a + 3b$

A. a + 24b

B. a + 3b

C. $\frac{2a + 6b}{2}$

D. 24ab

50. Consider the Figures I and II shown. What transformation of Figure I is shown in Figure II?

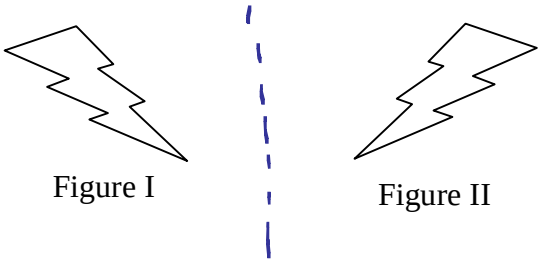


Figure I Figure II

A. Rotation

B. Translation

C. Dilation

D. Reflection

51. Kelly drove an average of 48 miles per hour for 2 hours and 15 minutes. Using the formula $d = r \cdot t$, how many miles did Kelly travel?

$d = r \cdot t$

$d = (48 \frac{M}{h})(2.25 h)$

$d = 108$ MILES

A. 96 miles

B. 108 miles

C. 100 miles

D. 120 miles

52. A student just bought a new MP3 player. The player has 512 megabytes of space. So, far the student has saved 30 songs on the player which has used 140 megabytes of space. At this rate, how many songs will the MP3 player hold?

$\frac{\#\text{ OF SONGS}}{\#\text{ OF MB}}: \frac{30}{140} \times \frac{x}{512}$

$\frac{140x}{140} = \frac{15360}{140}$

$x \approx 109.7$

A. 110

B. 172

C. 365

D. 2389

53. Which of the following algebraic expressions corresponds to the problem?

"8 less than a number tripled is that same number."

A. $8 - 3x = x$
B. $3x - 8 = x$
C. $8 - 3x = 8$
D. $3x - 8 = 8$

54. Which operation would solve the problem $\frac{x}{5} = 10$?

A. addition
B. subtraction
C. multiplication
D. division

55. Solve for x if $2x - 12 + x = 12$.

A. 0
B. 8
C. 12
D. 24

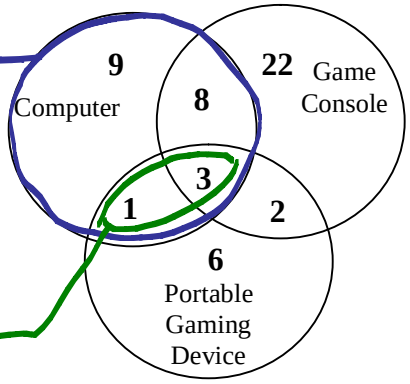
56. Mike has completed 20 days of a course and he still has 16 left to complete. What is the ratio of the days he still has left to the total number of days required to complete the course ?

A. $\frac{4}{9}$
B. $\frac{4}{5}$
C. $\frac{5}{9}$
D. $\frac{5}{4}$

A researcher at a mall took a survey of a few teenagers to see how many students played video games on different platforms.

57. How many teenagers played video games on a Computer?

A. 9
B. 10
C. 21
D. 8



58. How many teenagers played video games on a Computer **and** a Portable Gaming Device?

A. 1
B. 4
C. 6
D. 9

59. Given Point B is on segment $\overline{AC}$. What is the ratio of $\overline{AB}$ to $\overline{BC}$ if $\overline{AB} = 6$ and $\overline{AC} = 18$?

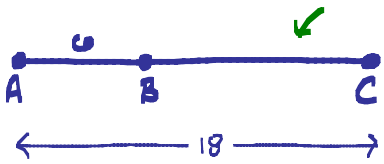
18 − 6 = 12

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

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

C. $\frac{2}{3}$

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



$\frac{AB}{BC} : \frac{6}{12} = \frac{1}{2}$

60. Jessica flips a coin and rolls a six sided die. What are the chances she ends up rolling a "1" on the die and flips the coin to heads?

A. $\frac{1}{18}$

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

C. $\frac{1}{36}$

D. $\frac{1}{12}$

INDEPENDENT EVENTS: $\frac{1}{6} \cdot \frac{1}{2} = \frac{1}{12}$

61. Which equation below demonstrates the commutative property?

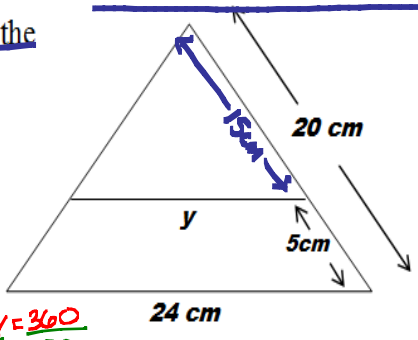
A. $5+(3+1)=(5+3)+1$: ASSOCIATIVE

B. $5+(3+1)=(3+1)+5$: COMMUTATIVE

C. $5(3+1)=15+5$: DISTRIBUTIVE

D. $5+(3\cdot 1)=5+3$: IDENTITY

62. Find the length of the unknown side in the diagram assuming the figures are similar.



A. 4.17 cm

B. 6 cm

C. 12.25 cm

D. 18 cm

SMALL Δ / BIG Δ: $\frac{15}{20} = \frac{y}{24}$

$20y = 360$

$\frac{20y}{20} = \frac{360}{20}$

$y = 18\text{cm}$

63. Evaluate $3(5+2^2)+1$

A. 148

B. 52

C. 28

D. 20

$3(5+2^2)+1 =$

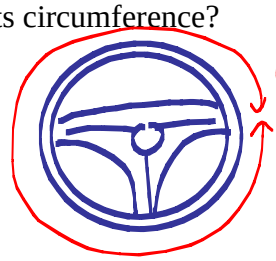
$3(5+4)+1 =$

$3(9)+1 =$

$27+1 = 28$

64. The student is wrapping their steering wheel in their car with leather. They need to order the correct amount at the store. They need to describe the distance around the steering wheel. If the steering wheel has a diameter of 14 inches, what is its circumference?

A. 43.98 cm
B. 87.96 cm
C. 153.94 cm
D. 615.75 cm

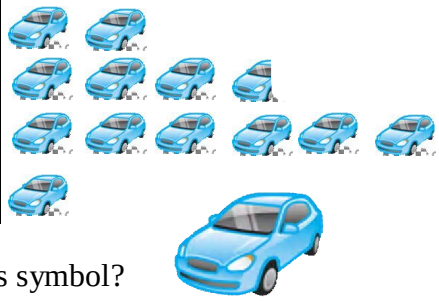


65. Which of the following pairs of activities could be used to illustrate the commutative property?

A. turning on the facet and washing your hands
B. putting a dime and a quarter into a vending machine
C. putting on your shoes and socks
D. turning on a lamp at night and reading a book

66. Lee is making a pictograph for car dealership to show how many of each model of car was sold in the last month for the quarterly stock holders meeting. He summarized his data:

Car Model	Number of Cars Sold
Piloteer	40
Eccord	70
Seismic	120
On-sight	20



In the pictograph, how many cars could be best represented by this symbol?

A. 1
B. 20
C. 50
D. 100