1) My friend and I each have some money. The average of the amounts we have is 64 cents. We have a total of:

    a) This cannot be determined from the information given.
    b) 32 cents
    c) 64 cents
    d) $1.20
    e) $1.28

2) The sum of the measures of the interior angles of a triangle in the plane is $180°$. Mahogani drew a triangle on her paper and measured two of the angles. Those angles measure 61 degrees and 58 degrees. What kind of triangle is this?

    a) Scalene
    b) Isosceles
    c) Equilateral
    d) Equiangular
    e) No triangle is possible with these measures.

3) If today is Tuesday, then 31 days ago, it was

    a) Thursday
    b) Friday
    c) Saturday
    d) Sunday
    e) Monday

4) My 12 coins, all nickels and dimes, have a total value of $1.00. How many of my coins are nickels?

    a) 2
    b) 4
    c) 6
    d) 8
    e) Several of these solutions are possible.

5) Which of the following number's positive factors add up to twice the number?

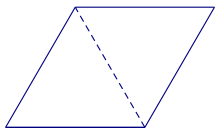
   a) 8
   b) 12
   c) 24
   d) 28
   e) 32

6) Of 30 students, 12 play football, 17 play baseball, and 5 play both. How many of them play neither?

   a) 1
   b) 4
   c) 5
   d) 6
   e) 11

7) Each equilateral triangle shown has a perimeter of 6 cm. What is the perimeter of the parallelogram?

   a) 4 cm
   b) 6 cm
   c) 8 cm
   d) 10 cm
   e) 12 cm



8) The length of a side of square S and the radius of circle C are equal. What is the area of C divided by the area of S?

   a) π
   b) 2
   c) 2π
   d) 4π
   e) $\frac{1}{4}\pi$

9) Lee multiplied three different prime numbers together. How many whole numbers are factors of this product?

   a) 3
   b) 4
   c) 7
   d) 8
   e) 9

10) A picture measuring five inches wide by seven inches long is often described by its dimensions as a 5 x 7 image. Cheng wishes to enlarge a 5 x 7 image proportionally, and he has chosen a new width of 8 inches. What will be the dimensions of the enlarged picture, in inches?

   a) 6 x 8
   b) 8 x 10
   c) 8 x 10.6
   d) 8 x 11.2
   e) None of these

11) The cost of a notebook increased by $1.60, which was a 40% increase. What was the original price of the notebook?

   a) $0.64
   b) $3.40
   c) $4.00
   d) $5.60
   e) $6.40

12) Jair made cupcakes for a bake sale. The recipe called for $3\frac{1}{2}$ cups of flour per batch. He had plenty of all other ingredients but only had enough flower to make $3\frac{3}{4}$ batches of cupcakes. How much flour did he have?

a) $6\frac{2}{3}$ cups of flour

b) $7\frac{1}{4}$ cups of flour

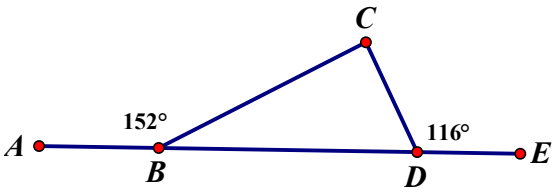
c) $9\frac{3}{8}$ cups of flour

d) $11\frac{1}{2}$ cups of flour

e) $13\frac{1}{8}$ cups of flour

13) Determine the measure of $\angle BCD$.

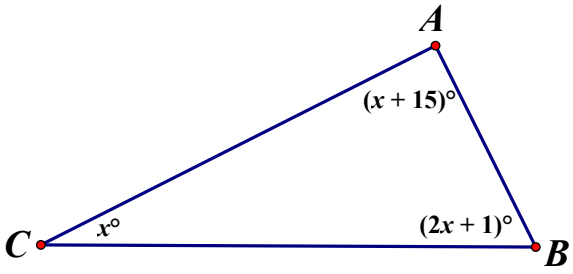
a) 28°
b) 64°
c) 88°
d) 90°
e) 116°



Not drawn to scale.

14) Determine the measure of $\angle B$.

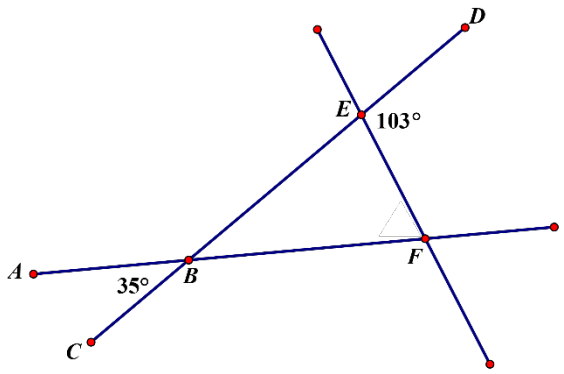
a) 41°
b) 42°
c) 83°
d) 90°
e) 97°



Not drawn to scale.

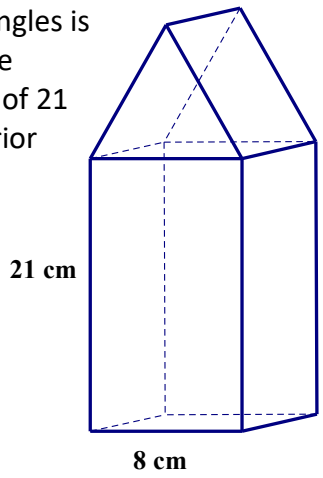
15) The measure of $\angle DEF = 103°$ and the measure of $\angle ABC = 35°$. Find the measure of $\angle EFB$. Note: the diagram is not drawn to scale.

a) 68°
b) 72°
c) 90°
d) 103°
e) 112°



16) Shelby used some cardboard to create a house for a model village. She wants to paint the exterior, but before buying the paint, she wants to know the surface area of the house's front, back, roof, and sides. It was constructed of a triangular prism on a rectangular prism as shown. The length of each side of the triangles is 8 cm, and the height of the triangles is approximately 6.9 cm. The rectangular prism has four base sides of 8 cm each, and a height of 21 cm. What is the total area of the surfaces to be painted (all exterior surfaces except the bottom)?

a) 259.6 cm^2
b) 287.2 cm^2
c) 727.2 cm^2
d) 782.4 cm^2
e) 855.2 cm^2



17) Early one January morning in Minnesota, the air temperature outside was – 6° F. By mid-afternoon, the temperature was recorded to be 23° F. What was the change in temperature?

a) The temperature fell 29° F.
b) The temperature rose 29° F.
c) The temperature fell 17° F.
d) The temperature rose 17° F.
e) The temperature rose 35° F.

18) Marcus is twice his sister's age, and she is 6. If their mother's age is twice the sum of their ages, then how old is their mother?

a) 18
b) 24
c) 32
d) 36
e) 44

19) The International Space Station (ISS) orbits the Earth in about 90 minutes. How many orbits will the ISS complete in one day?

a) 3.75
b) 16
c) 36
d) 216
e) 2160

20) The sum of the two prime numbers between 30 and 40 is:

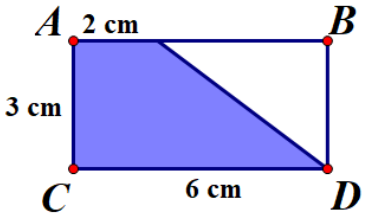
a) 68
b) 70
c) 62
d) 74
e) 78

21) Tomas has to mix his own paint to get the color he likes best. The only paint colors available at his paint store are red, blue, and green. He has decided that his favorite color is a mixture of red, blue, and green which consists of 3 parts red, 2 parts blue, and 4 parts green. He needs a total of 3 gallons of paint to paint two rooms. The paint can only be purchased in the quantity of whole gallons. What is the minimum number of gallon buckets of each color Tomas will need to buy to paint these two rooms with the color he likes best?

a) 1 red, 1 blue, 1 green
b) 1 red, 1 blue, 2 green
c) 2 red, 1 blue, 2 green
d) 2 red, 2 blue, 4 green
e) 3 red, 2 blue, 4 green

22) What percent of the rectangle ABDC is shaded?

a) 75%
b) 85%
c) $33\frac{1}{3}\%$
d) 62.5%
e) $66\frac{2}{3}\%$



23) In a sample of 50 people, 21 had type O blood, 22 had type A blood, 5 had type B blood, and 2 had type AB blood. To be clear, these are four distinct types. The name "type AB" does not mean "type A and type B." Find the probability that a person selected at random from this sample does not have type A blood or type B blood.

a) $\frac{1}{25}$

b) $\frac{22}{50}$

c) $\frac{23}{50}$

d) $\frac{45}{50}$

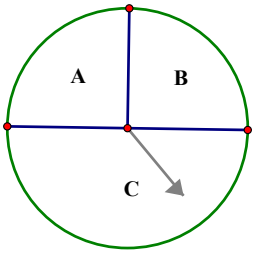
e) $\frac{21}{50}$

24) Six friends were comparing their scores on their last math quiz. Annie scored 18 points, Barbie and Stevie each scored 14 points, Mike scored 16, Loren scored 10, and Xavier scored 19 points. Which of the measures of center (mean, median, and mode) is greatest for this set of scores?

a) Mean
b) Median
c) Mode
d) All of the measures of center are equal.
e) Median and mode are equal and larger than the mean.

25) Consider the following spinner, which is drawn to scale, used in a game. During the play of the game, the spinner was spun many times, but on 16 of those spins, the arrow stopped in the space labeled C. How many times would you expect the arrow to have stopped on the space labeled B?

a) 4 times
b) 8 times
c) 9 times
d) 12 times
e) 16 times



26) Find the difference: $(3x + 7) - (2x - 5)$

a) $x - 2$
b) $x^2 + 2$
c) $5x + 12$
d) $x + 12$
e) $x + 2$

27) Write the following expression using mathematical symbols:
a number y is greater than or equal to -3 and less than 5.

a) $-3 < y > 5$
b) $-3 \geq y < 5$
c) $-3 = y > 5$
d) $y \geq -3 < 5$
e) $-3 \leq y < 5$

28) Which of these is not possible in the plane?

a) A right triangle with two acute angles
b) An isosceles triangle with a right angle
c) An isosceles triangle with two obtuse angles
d) A scalene triangle with 3 acute angles
e) A right triangle which is also scalene

29) Find the product of: $\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} \cdot \frac{5}{6} \cdot \frac{6}{7}$

a) $\frac{1}{7}$

b) $\frac{1}{3}$

c) 1

d) $\frac{7}{12}$

e) $\frac{1}{2}$

30) A mouse is at the bottom of an 18 foot well. Each day he is able to pull himself up 3 feet, but each night he loses his strength and slides back down 2 feet. The side of the well has plenty for the mouse to eat and drink during his climb. How many days will it take him to reach the top of the well?

a) 14 days
b) 16 days
c) 18 days
d) 20 days
e) 24 days