**Basic Algebra Practice Final 2017**

**1.** Which of the following figures show a 90° counter -clockwise rotation of the figure shown below?





 **A.**

 **B.**





 **C.**

 **D.**



**2.** If point *H*(–6, 2) is translated 4 units down and 3 units left, what are the coordinates of the translated image?

 **F.** *H*'(–2, 5)

 **G.** *H*'(–3, 6)

 **H.** *H*'(–9, –2)

 **I.** *H*'(–9, 6)

**3.** The dilation of is shown below. What is the scale factor of the dilation?



 **A.**

 **B.**

 **C.** 2

 **D.** 3

**4.** Point *N*(6, –5) is reflected across the *y*-axis. What are the coordinates of the image?

 **F.** *N*'(–6, –5)

 **G.** *N*'(–5, 6)

 **H.** *N*'(5, –6)

 **I.** *N*'(6, 5)

**Basic Algebra Practice Final 2017** *(continued)*

 **5.** Suppose triangle *RST* shown on the coordinate grid is reflected across the *y*-axis. Which ordered pair does *not* represent a vertex of the reflected triangle?



 **F.** (5, 1)

 **G.** (–4, –2)

 **H.** (2, –4)

 **I.** (–2, 4)

**6.** Which rotation best describes the transformation shown below?



 **F.** 90° counterclockwise rotation

 **G.** 270° clockwise rotation

 **H.** 180° rotation

 **I.** 90° clockwise rotation

**7.** Which transformation does result in an image similar to the original figure, but different size?

 **A.** translation

 **B.** dilation

 **C.** reflection

 **D.** rotation

**8.** Mary enlarged a 4- by 6-inch photo to a 10- by 15-inch photo. What is the scale factor of the dilation?

 **A.** 2

 **B.** 2.5

 **C.** 6

 **D.** 9

**9.** The area of a figure is 64 square centimeters. Suppose the sides of the figure are doubled. What will be the new area of the similar figure?

 **A.** 16 square centimeters

 **B.** 32 square centimeters

 **C.** 128 square centimeters

 **D.** 256 square centimeters

**Basic Algebra Final 2017**

 **10.** Triangle *MNO* is similar to triangle *WXY*. Which of the following statements is not necessarily true?



 **F.** ∠*Y* = *O*

 **G.**

 **H.** ∠*N* = ∠*X*

 **I.**

**11.** What is the volume of a sphere with a radius of 9 inches?



 **A.** 1016π in3

 **B.** 972π in3

 **C.** 486π in3

 **D.** 324π in3

**12. SHORT ANSWER** The two-way table shows the number of boys and girls in the school band and choir. Is there a greater percentage of boys in the school band or in the choir? Explain.

|  |  |  |
| --- | --- | --- |
|  | **Band** | **Choir** |
| **Boys** | 14 | 5 |
| **Girls** | 12 | 9 |

**13.** A soup can has a diameter of 8 centimeters and a height of 15 centimeters. About how much soup does the can hold? Use 3.14 for π. Round to the nearest tenth.

 **F.** 376.8

 **G.** 753.6

 **H.** 1028.7

 **I.** 3014.4

**14. SHORT ANSWER** The table shows the number of goals scored by the Cougars so far this soccer season.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Game** | 1 | 2 | 3 | 4 | 5 |
| **Goals Scored** | 1 | 5 | 3 | 4 | 2 |

 What is the mean absolute deviation?

**15.** Suppose the dimensions of a rectangular prism are enlarged by a factor of 2. By what scale factor will the volume of the prism be scaled?



 **A.**

 **B.** 8

 **C.** 6

 **D.** 2

**Basic Algebra Final 2017** *(continued)*

**16.** What type of relationship is shown in the scatter plot below?



 **A.** positive

 **B.** negative

 **C.** skewed

 **D.** no relationship

**17.** About how much water can the paper drinking cup shown below hold? Use 3.14 for π. Round to the nearest tenth.



 **F.** 17.2 cubic inches

 **G.** 7.2 cubic inches

 **H.** 5.7 cubic inches

 **I.** 4.5 cubic inches

**18. SHORT ANSWER** Determine if the two figures below are congruent by using transformations. Explain your reasoning.



**19.** Which two points form a line that has a slope of ?

 **A.** (3, 6) and (–1, –4)

 **B.** (4, 2) and (7, –1)

 **C.** (–4, 7) and (–9, 5)

 **D.** (3, –7) and (8, 4)

**20.** What is the constant rate of change of the function represented in the table below?

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| –4 | –9 |
| –2 | –3 |
| 0 | 3 |
| 2 | 9 |

 **F.** 2

 **G.** 3

 **H.** 5

 **I.** 6

**21.** Which transformations could have been used to map the first figure to the second?



 **A.** dilation, translation

 **B.** dilation, reflection

 **C.** reflection, rotation

 **D.** translation, rotation

**Basic Algebra Final 2017** *(continued)*

**22.** Katie is 5 feet tall. She casts a 8-foot long shadow at the same time that a tree casts an 24-foot long shadow.



 What is the height of the flagpole?

 **F.** 10 ft

 **G.** 25 ft

 **H.** 15 ft

 **I.** 30 ft

**23.** What is the approximate surface area of a cylinder with a height of 12 meters and a base radius of
2 meters? Use 3.14 for π. Round to the nearest tenth if necessary.

 **A.** 242.1

 **B.** 175.8

 **C.** 150.7

 **D.** 124.5

**24. SHORT ANSWER** The area of a square patio is
169 square feet. What is the perimeter of the patio?



**25.** A cone has a height of 24 inches, a slant height of
25 inches, and a diameter of 14 inches. What is the surface area of the cone?

 **A.** 1,176π in2

 **B.** 392π in2

 **C.** 224π in2

 **D.** 178π in2

**26. SHORT ANSWER** What is the relationship between the slope of the line and the side lengths of the triangles?



**27.** What is the slope of the line that passes through points *R*(2, 0) and *T*(–4, –3)?

 **A.** 2

 **B.**

 **C. −**

 **D. −** 2

**Basic Algebra Final 2017** *(continued)*

**28.** What type of transformation is represented by the figures below?



 **A.** dilation

 **B.** reflection

 **C.** rotation

 **D.** translation

 **29.** Which series of transformations can be used to prove that triangle *HIJ* is similar to triangle *H’I’J’*?



 **A.** reflection, dilation

 **B.** 90° rotation, dilation

 **C.** translation, dilation

 **D.** 180° rotation, dilation

**30.** Which of the following statements about a line of best fit is *not* true?

 **F.** Most of the data points are close to the line.

 **G.** About half of the points are above the line.

 **H.** All of the data points have to be on the line.

 **I.** The line can be used to make conjectures.

**31.** By what factor would you need to multiply the dimensions of a polygon in order for the resulting image to have a perimeter that is equal to 4 the original perimeter?

 **A.**   **C.** 2

 **B. D.** 4

**32.** What is the scale factor of the dilated figure shown below, going from LMN to RST?



 **A.** 0.25 **C.** 2

 **B.** 0.5 **D.** 4

 **33.** Point *A*(–7, –3) is reflected across the *x*-axis. What are the coordinates of the image?

 **F.** *A*'(3, –7) **H.** *A*'(–3, –7)

 **G.** *A*'(–7, 3) **I.** *A*'(7, –3)