

Hayden Middle School
Math Tournament
6th Grade 2019

- 1) Julie is saving $\frac{2}{19}$ of her monthly income of \$6612 for retirement. How much money is she setting aside each month for retirement? 1) _____
- A) \$348 B) \$174 C) \$696 D) \$62,814

Find the grade point average. If necessary, round to the nearest hundredth. 2) _____

2)

Grade	Credit Hours
A	2
C	1
D	1
F	2
C	2

A) 1.88 B) 1.6
C) 8 D) 1.8

- Simplify the expression. Write the result using positive exponents only. 3) _____
- 3) $\left(\frac{xy^6}{x^5y}\right)^{-2}$
- A) $\frac{1}{x^{12}y^{14}}$ B) $\frac{1}{x^7y^{13}}$ C) $\frac{x^8}{y^{10}}$ D) $\frac{y^{10}}{x^8}$

- 4) A window washer is suspended 37 feet below the roof of a 985-foot-tall building. If the window washer drops an object from this height, the object's height h after t seconds is given by the equation $h = -16t^2 + 948$. Find how many seconds pass before the object reaches the ground. Round to the nearest hundredth of a second when necessary. 4) _____
- A) 59.25 sec B) 7.55 sec C) 7.7 sec D) 7.85 sec

- Simplify 5) _____
- 5) $\frac{\frac{3}{x} + \frac{8}{x^2}}{\frac{9}{x^2} - \frac{64}{x}}$
- A) $\frac{3x^2 + 8}{9 - 64x}$ B) $\frac{1}{3 - 8x}$ C) $\frac{3x + 8}{9 - 64x}$ D) $\frac{1}{3x - 8}$

- 6) Find the amount of a 11% saline solution a lab assistant should add to 60 cc (cubic centimeters) of a 21% in order to have 14% solution. 6) _____
- A) 140 cc B) 10 cc C) 190 cc D) 40 cc

7) The formula $v = \sqrt{2.5r}$ can be used to estimate the maximum safe velocity v , in miles per hour, at which a car can travel along a curved road with a radius of curvature r , in feet. To the nearest whole number, find the maximum safe speed for a curve in a road with a radius of curvature of 150 feet. 7) _____

- A) 12 mph B) 8 mph C) 31 mph D) 19 mph

Divide

8) $\frac{8x^3 + 1}{2x - 1}$ 8) _____

- A) $4x^2 + 2x + 1 + \frac{1}{2x - 1}$ B) $4x^2 + 2x + 1$
 C) $4x^2 - 2x + 1$ D) $4x^2 + 2x + 1 + \frac{2}{2x - 1}$

9) Five divided by the sum of a number and 4, minus the quotient of 3 and the difference of the number and 4 is equal to 6 times the reciprocal of the difference of the number squared and 16. What is the number? 9) _____

- A) 19 B) -13 C) $-\frac{13}{4}$ D) 7

10) x varies inversely as y^2 . If $x = 6$ when $y = 6$, find x when $y = 2$. 10) _____

- A) $x = 3$ B) $x = 24$ C) $x = 54$ D) $x = 108$

Solve

11) $\frac{2(4x + 7)}{5} > 4$ 11) _____

- A) $\left\{x \mid x > \frac{5}{2}\right\}$ B) $\left\{x \mid x > \frac{3}{4}\right\}$ C) $\{x \mid x > 3\}$ D) $\left\{x \mid x < \frac{3}{4}\right\}$

Simplify

12) $-9(2x + 3) + 10(8x + 10)$ 12) _____

- A) $62x + 73$ B) $62x + 3$ C) $-7x - 6$ D) $-45x$

13) A bike road race starts at an elevation of 790 feet and passes through 5 stages where the elevation changes by -338 feet, -64 feet, 86 feet, 580 feet, and -648 feet. At what elevation does the race end? 13) _____

- A) -2506 feet B) 406 feet C) 1124 feet D) 2506 feet

Simplify

14) $\left(\frac{7}{8}\right)^2 \div \left(\frac{7}{8} - \frac{1}{12}\right)$ 14) _____

- A) $\frac{147}{152}$ B) $\frac{931}{1536}$ C) $\frac{19}{24}$ D) $\frac{147}{19}$

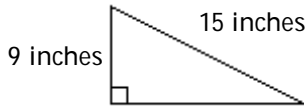
15) Given $\left\{4, \sqrt{6}, -18, 0, \frac{0}{8}, \sqrt{16}, \frac{-7}{0}, 0.76\right\}$, list the numbers in this set that also belong to the set of Irrational numbers. 15) _____

- A) $\sqrt{6}, \sqrt{16}$ B) $\sqrt{6}, \sqrt{16}, 0.76$ C) $\sqrt{6}$ D) $\sqrt{6}, \frac{-7}{0}$

Suppose that the numbers 1 through 10 are each written on a scrap of paper and placed in a bag. You then select one number from the bag.

- 16) What is the probability of choosing a 4 or a 7 from the bag? 16) _____
A) $\frac{b}{10}$ B) $\frac{1}{5}$ C) $\frac{1}{10}$ D) $\frac{11}{10}$

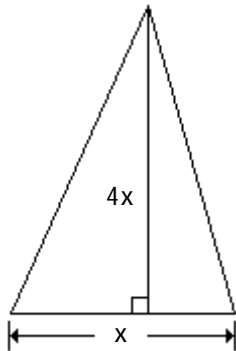
- 17) Find the length of the unknown leg of the right triangle shown. Give an exact answer. 17) _____



- A) 15 in. B) in.14 C) 11 in. D) 12 in.

- 18) A hotel is building a fitness center measuring 223 ft \times 36 ft. The flooring to cover the space is made of a special 3-layered cushioned tile and costs \$14.00 per square foot. How much will it cost for the new flooring? 18) _____
A) \$7252 B) \$112,392 C) \$8028 D) \$273

- 19) The height of a triangle is 4 times the length of the base. The area of the triangle is 162 square meters. Find the height and base of the triangle. 19) _____

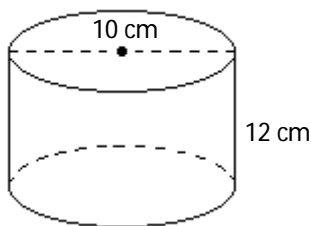


- A) base: $\frac{9}{2}$ m, height: 72 m B) base: 36 m, height: 72 m
C) base: $\frac{9\sqrt{2}}{2}$ m, height: $18\sqrt{2}$ m D) base: 9 m, height: 36 m

Find the volume of the solid. For the cylinder, use $\pi \approx \frac{22}{7}$.

20)

20) _____



- A) $3771\frac{3}{7}$ cu cm B) $314\frac{2}{7}$ cu cm C) $78\frac{4}{7}$ cu cm D) $942\frac{6}{7}$ cu cm

Solve. Round all dollar amounts to the nearest cent, if necessary.

21) Find the simple interest earned on \$9000 saved for $5\frac{1}{2}$ years at an interest rate of 7%. 21) _____

- A) \$6300.00 B) \$34,650.00 C) \$3465.00 D) \$630.00

22) Currently 31 out of every 50 American adults drink coffee every day. In a town with a population of 6600 adults, how many of these adults would you expect to drink coffee every day? 22) _____

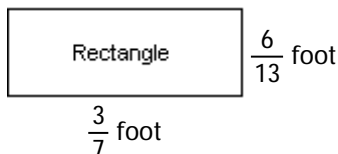
- A) 10,645 adults B) 4092 adults C) 2046 adults D) 8184 adults

23) Find the LCM of 9, 48, and 162. 23) _____

- A) 1296 B) 324 C) 432 D) 648

Find Area and Perimeter

24) 24) _____



- A) area: $\frac{18}{91}$ ft²; perimeter: $1\frac{71}{91}$ ft B) area: $\frac{7}{26}$ ft²; perimeter: $\frac{81}{91}$ ft
 C) area: $\frac{18}{91}$ in²; perimeter: $1\frac{71}{91}$ in D) area: $\frac{1}{4}$ ft²; perimeter: $1\frac{71}{91}$ ft

Simplify

25) $\frac{64 \div 8 \cdot 2}{(\sqrt{100} - \sqrt{81})^2 + 1}$ 25) _____

- A) 16 B) 8 C) 32 D) 4

Answer Key

Testname: HAYDEN MIDDLE 6TH GRADE TEST 2019

- 1) C
- 2) A
- 3) C
- 4) C
- 5) C
- 6) A
- 7) D
- 8) D
- 9) A
- 10) C
- 11) B
- 12) A
- 13) B
- 14) A
- 15) C
- 16) B
- 17) D
- 18) B
- 19) D
- 20) D
- 21) C
- 22) B
- 23) A
- 24) A
- 25) B