Upper Academy

7th Grade Math

Summer 2023 Home Learning

We strongly recommend your child works on the Summer Home Learning assignment. It will help your child to get a general idea of the content to be covered throughout the next school year.

Directions to students: Please complete the math problems on the following pages the best you can and show and turn in your work on a separate sheet of paper.

If some questions are not familiar to you, use Khan Academy, IXL videos related to each topic, or “Mathantics” videos.

Name _____ Date _____ Class_____

GRADE 7

Mathematics Summer Learning (show work on separate paper)

Choose the best answer.

For 1–2, use the data set.

Stem	Leaves
2	0 8 9 9
3	1 2 6
4	1 2

1. What is the mean of the data set?

   A 22 C 31

   B 29 D 32

2. How are the data displayed?

   F box-and-whisker plot

   G frequency table

   H stem-and-leaf plot

   I histogram

3. For which of the following would a line graph be the best way to show the data?

   A showing how you budget your money

   B showing how many people were in math class during the first five periods on the first day of school

   C showing the change in temperature over 6 hours

   D none of the above

4. Evaluate 16^2.

   F 8 H 32

   G 18 I 256

5. Which is 730,000 in scientific notation?

   A 73×10^4 C 7.3×10^4

   B 7.3×10^5 D 73×10^5

6. Evaluate $2 + 6[(4 + 4) \div 2]$.

   F 48 H 32

   G 38 I 26

7. Solve $5z = 105$.

   A $z = 21$ C $z = 105$

   B $z = 100$ D $z = 525$

8. Find the difference $-6 - (-3)$.

   F -9 H 3

   G -3 I 9

9. Solve $\frac{k}{-8} = -6$.

   A $k = -48$ C $k = 2$

   B $k = -14$ D $k = 48$

10. Convert $\frac{45}{20}$ to a decimal.

    F 2.25 H 0.25

    G $2\frac{1}{4}$ I 0.44

11. Find the product $-3.5 \cdot 1.4$.

    A -4.9 C -0.49

    B 0.49 D 4.9

12. Solve $7.2h = 57.6$.

    F $h = 0.8$ H $h = 50.4$

    G $h = 8$ I $h = 80$

13. Find the quotient $3\frac{6}{7} \div \frac{5}{21}$.

    A $\frac{5}{81}$ C $1\frac{4}{45}$

    B $\frac{45}{49}$ D $16\frac{1}{5}$

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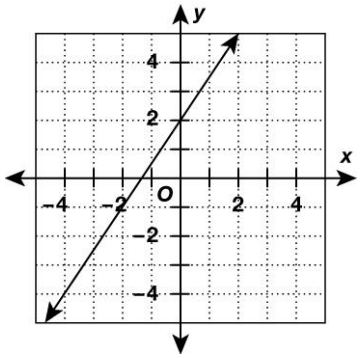
14. Solve $x - 6\frac{1}{2} = 3\frac{2}{3}$.

F $x = 10\frac{1}{6}$ H $x = 9\frac{1}{6}$

G $x = 9\frac{3}{5}$ I $x = 3\frac{1}{6}$

15. Write the equation of the line in slope-intercept form.



A $y = \frac{3}{2}x - 2$ C $y = \frac{3}{2}x + 2$

B $y = \frac{2}{3}x - 2$ D $y = \frac{2}{3}x + 2$

16. Solve the equation $-8x + 12 = 108$

F $x = -96$ H $x = 12$

G $x = -12$ I $x = 96$

17. Use cross products to solve the proportion $\frac{5}{m} = \frac{15}{9}$.

A $m = 1$ C $m = 8\frac{1}{3}$

B $m = 3$ D $m = 27$

18. Use a unit conversion factor to convert 90 yards per minute to yards per second.

F 300 yd/s H 15 yd/s

G 60 yd/s I 1.5 yd/s

19. A scale model of a building is 5 inches wide by 7 inches long. If the scale is 1 in.:15 ft, how long is the building?

A 35 feet C 105 feet

B 75 feet D 180 feet

20. What is 85% written as a fraction?

F $\frac{17}{20}$ H 0.85

G $1\frac{3}{17}$ I $\frac{85}{1}$

21. 72 is 18% of what number?

A 400 C 25

B 129.6 D 12.96

22. Find the percent of decrease if 110 is decreased to 88.

F 125% H 25%

G 80% I 20%

23. What is the simple interest rate if $p = \$4{,}000$, $t = 2$ years, and $I = \$320$?

A 2% C 8%

B 4% D 80%

24. What is the sum in simplest form?

$5\frac{3}{4} + 2\frac{1}{2}$

F $7\frac{4}{6}$ H $7\frac{5}{4}$

G $7\frac{2}{3}$ I $8\frac{1}{4}$

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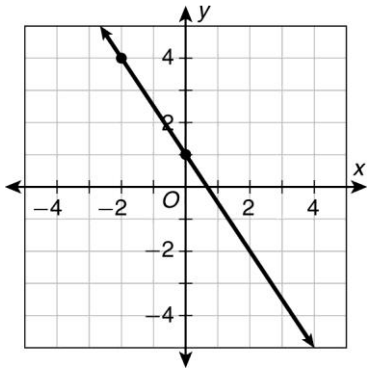
25. Which function represents a proportional relationship?

A $y = 3x$ C $y = 3x - 1$

B $y = 2x - 1$ D $y = 4x^2$

26. The graph shows a constant rate of change. What is the slope of the line?



F $-\frac{3}{2}$ H $\frac{2}{3}$

G $-\frac{2}{3}$ I $\frac{3}{2}$

27. Luc wants to display the data below in a box-and-whisker plot. What are the lower and upper quartiles of the data?

4, 9, 6, 13, 7, 19, 15, 9, 16, 12

A 7, 15 C 4, 19

B 9, 13 D 7, 18

28. Convert 4.5 meters to centimeters.

F 450 cm H 0.45 cm

G 45 cm I 0.045 cm

29. Find the area of a triangle with base 10 centimeters and height 8.5 centimeters.

A 85 cm^2 C 37 cm^2

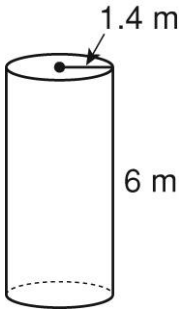
B 42.5 cm^2 D 18.5 cm^2

30. What is the area of a circle with a radius of 3 meters? Use 3.14 for π.

F 0.942 m^2 H 28.26 m^2

G 9.42 m^2 I 282.6 m^2

31. Find the volume of the cylinder to the nearest tenth. Use 3.14 for π.



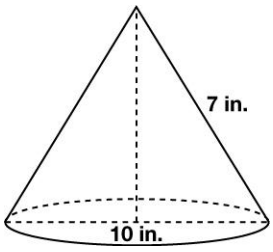
A 12.3 m^3

B 26.4 m^3

C 36.9 m^3

D 158.3 m^3

32. Find the surface area. Use 3.14 for π.



F 183.1$\overline{6}$ in^2 H 533.8 in^2

G 188.4 in^2 I 732.$\overline{6}$ in^2

33. The volume of a cylinder is 88 cubic inches. A smaller container, similar in shape, has a scale factor of $\frac{1}{2}$.

What is the volume of the smaller container?

A 11 in^3 C 176 in^3

B 44 in^3 D 704 in^3

34. Helen has four jogging outfits and three pairs of shoes. How many different outfits can she make?

F 1 outfit H 10 outfits

G 7 outfits I 12 outfits

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35. The probability of drawing a blue card is $\frac{5}{11}$. What is the probability of NOT drawing a blue card?

A $\frac{3}{11}$ C $\frac{6}{11}$

B $\frac{5}{11}$ D $\frac{4}{11}$

36. Kia's experimental probability of striking out at baseball is 13%. Out of 30 times at bat, about how many times will she strike out?

F 4 H 12

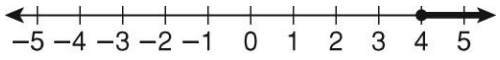
G 9 I 18

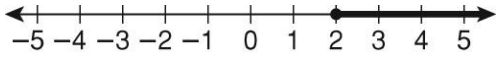
37. Solve $4w = 2w - 12$.

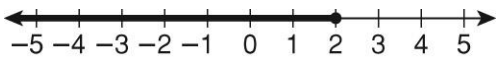
A $w = -6$ C $w = 2$

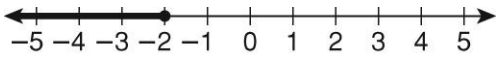
B $w = -2$ D $w = 6$

38. Which is the graph of the solution set of $n - 3 \geq -1$.

F 

G 

H 

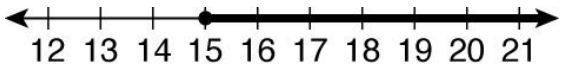
I 

39. Solve $-2n + 5 > 7$.

A $n > 1$ C $n > -1$

B $n < 1$ D $n < -1$

40. Which inequality has the following graphed solution?



F $45 > 3y$ H $3y < 45$

G $3y \leq 45$