



AcadeMir Charter Schools

2024 SUMMER INCOMING PRE-ALGEBRA MATH PACKET

Please turn into your Math teacher by Friday, August 23rd.

ACADEMIR CHARTER SCHOOLS



Dear incoming Pre-Algebra student,

We hope you had a wonderful year in school!

This summer math packet has been created to help you review and prepare for Pre-Algebra. It covers many of the math topics that you learned in class this year, which we will be building on next year.

- Please show all of your work for every problem in the packet. You can show your work on a separate sheet of paper.
- The paper should be neatly organized - with every problem numbered.
- Highlight, draw a box, or draw a circle around your final answers.
- Do **NOT** use a calculator

Note: If you submit your summer packet without the work, you **WILL NOT receive full credit.*

The completed packet is due on the first week of school by:

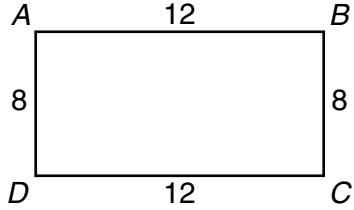
Friday, August 23rd.

It will count as your first math grade of the new school year.

We hope you have a nice summer and look forward to seeing you in August!

Number and Quantitative Reasoning

Select the best answer.

- Which list contains the first four multiples of 13?
A 13, 130, 1300, 13000
B 13, 16, 19, 22
C 13, 14, 15, 16
D 13, 26, 39, 52
- Which pair of numbers has 7 as its least common multiple?
F 7, 21
G 3, 4
H 14, 28
J 1, 7
- The number 9 is a factor of which of the following numbers?
A 3
B 19
C 63
D 109
- What is the greatest common factor of $6d^2$ and $18d$?
F $6d^2$
G $6d$
H $3d^2$
J $3d$
- Which number is not composite?
A 9
B 21
C 37
D 111
- Find the value of $\sqrt{49}$.
F 4
G 7
H 24
J 98
- Which statement is true?
A $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 = 5(8)$
B $2 \cdot 2 \cdot 2 = 3^2$
C $5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 = 5^5$
D $6 \cdot 6 \cdot 6 \cdot 6 = 6^4$
- Evaluate 6^3 .
F 3
G 18
H 108
J 216
- Round 17.081 to the nearest tenth.
A 17
B 17.1
C 17.08
D 17.8
- Which fraction is written in simplest form?
F $\frac{121}{11}$
G $\frac{85}{5}$
H $\frac{23}{3}$
J $\frac{16}{4}$
- Change $\frac{4}{5}$ to a decimal.
A 0.4
B 0.45
C 0.8
D 0.85
- What is the ratio of AB to BC , in simplest form?

F 1 : 1
G 2 : 3
H 3 : 2
J 4 : 3
- Which of the following has a unit rate of 17 miles per hour?
A 60 miles in 2 hours
B 85 miles in 5 hours
C 90 miles in 10 hours
D 120 miles in 15 hours
- Which decimal is equivalent to 22%?
F 0.2
G 0.22
H 2.2
J 22.0

Number and Quantitative Reasoning

Measurement

15. Write 0.000000082 in scientific notation.

- A 82×10^{-9}
- B 82×10^8
- C 0.82×10^7
- D 8.2×10^{-8}

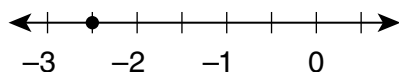
16. Which statement is true?

- F $0.75 < 70\%$
- G $6.12 > 6.16$
- H $\frac{1}{3} = 30\%$
- J $\frac{3}{5} > \frac{4}{7}$

17. Which number set(s) best classifies the number -5 ?

- A natural numbers
- B whole numbers, integers
- C integers, rational numbers
- D natural numbers, integers, rational numbers

18. Identify the point graphed on the number line.

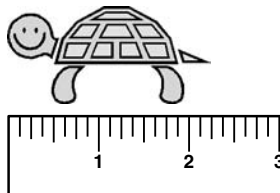


- F -1.5
- G -2.2
- H -2.5
- J -3.5

19. Which measurement is the most appropriate for the radius of a soccer ball?

- A 4 inches
- B 18 inches
- C 1 foot
- D 3 feet

20. What is the length of the turtle?



- F $2\frac{1}{16}$ in.
- G $2\frac{1}{4}$ in.
- H $2\frac{3}{8}$ in.
- J $2\frac{3}{4}$ in.

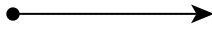
21. How many liters are in 22,000 milliliters?

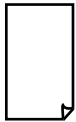
- A 220 L
- B 22 L
- C 2.2 L
- D 0.22 L

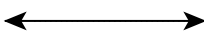
Geometry

22. Which of the following represents a ray?

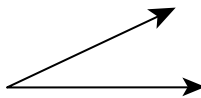
F •

G • 

H 

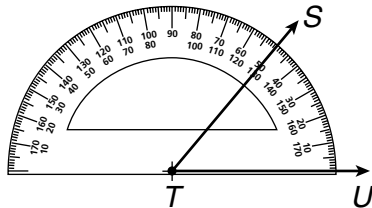
J 

23. Classify the angle.



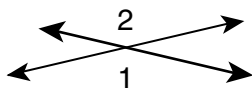
- A straight
- B obtuse
- C right
- D acute

24. What is the angle measure of STU ?



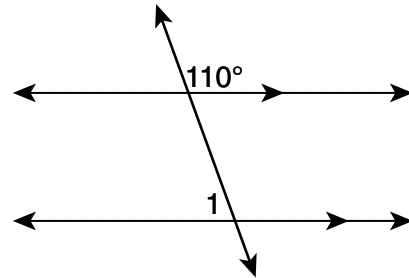
- F 20°
- G 50°
- H 70°
- J 130°

25. Select the best description for angles 1 and 2.



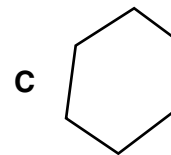
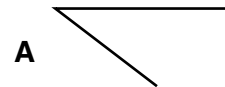
- A vertical angles
- B adjacent angles
- C linear pair
- D supplementary

26. Find the measure of angle 1.



- F 70°
- G 80°
- H 90°
- J 110°

27. Which figure is not a polygon?

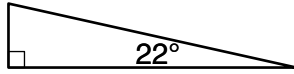


28. What is the sum of the interior angles in a quadrilateral?

- F 90°
- G 180°
- H 360°
- J 720°

Geometry

29. Classify the triangle.

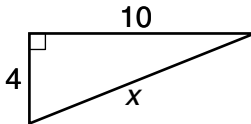


- A right C equilateral
 B obtuse D isosceles

30. Two angles of a triangle are 32° and 110° . What is the measure of the third angle?

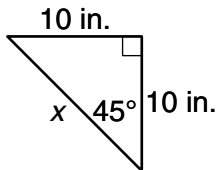
- F 218° H 142°
 G 180° J 38°

31. Given the right triangle below, what is x ?



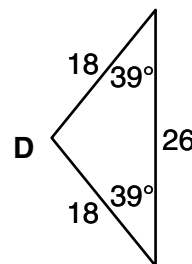
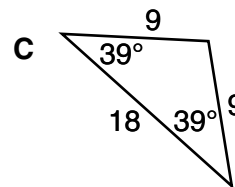
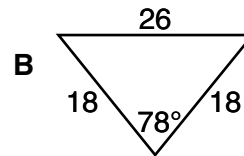
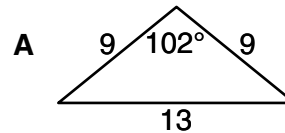
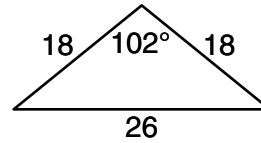
- A 9.2
 B 10.8
 C 84
 D 116

32. Find the value of x .

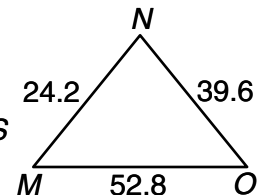
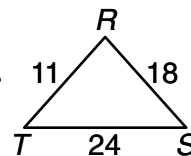
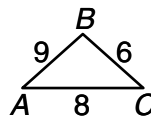


- F $\sqrt{2}$ in. H 10 in.
 G $10\sqrt{2}$ in. J $2\sqrt{10}$ in.

33. Which figure is congruent to this triangle?



34. Which similarity statement is true?



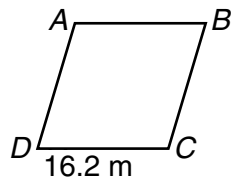
- F $\triangle ABC \sim \triangle MNO$
 G $\triangle ABC \sim \triangle TRS$
 H $\triangle TRS \sim \triangle MNO$
 J $\triangle TRS \sim \triangle ONM$

Geometry

35. Triangle DEF and triangle QRS are right triangles. If $\triangle DEF$ is similar to $\triangle QRS$, and $m\angle EFD = 65^\circ$, which of the following angles also has a measure of 65° ?

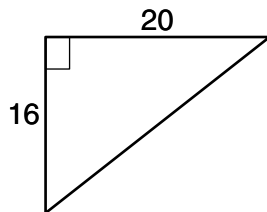
A $\angle QRS$ **C** $\angle QSR$
B $\angle RQS$ **D** $\angle SQR$

36. Find the perimeter of rhombus $ABCD$.



F 32.4 m **H** 262.44
G 64.8 m **J** 268.96

37. What is the area of a triangle with a height of 20 meters and a base of 16 meters?

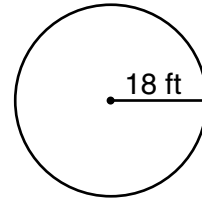


A 160 square meters
B 320 square meters
C 640 square meters
D 656 square meters

38. A rectangle has vertices at $P(1, 0)$, $Q(6, 0)$, $R(6, 6)$, and $S(1, 6)$. What is the area of rectangle $PQRS$?

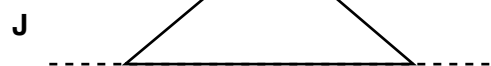
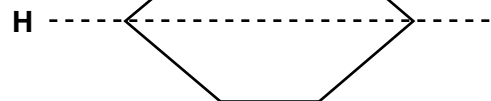
F 11 square units
G 22 square units
H 30 square units
J 150 square units

39. Find the circumference.



A 81π **C** 18π
B 36π **D** 9π

40. The figure below has a line of symmetry. Which drawing best shows the completion of the figure?

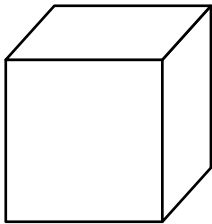


Geometry

41. Determine the surface area of a rectangular prism with height 5 in., width 7 in., and length 12 in.



- A 24 in.²
B 358 in.²
C 420 in.²
D 840 in.²
42. Determine the volume of a cube with side length 12 ft.



- F 36 ft³
G 144 ft³
H 864 ft³
J 1728 ft³

Operations

43. What is $224 \div 14$?
- A 16
B 14
C 12
D 8
44. Find the difference. $18 - 6.8$
- F 12.2
G 11.2
H 2.2
J 1.2
45. Find the product. 0.6×1.5
- A 0.9
B 9.0
C 9.9
D 90
46. Divide. $12.24 \div 2$
- F 2.05
G 6.12
H 8.24
J 24.40
47. Find the product in simplest form.
- $\frac{6}{7} \times \frac{2}{3}$
- A $\frac{6}{5}$
B $\frac{8}{21}$
C $\frac{4}{7}$
D $\frac{1}{2}$

Operations

48. Subtract. $\frac{7}{9} - \frac{1}{3}$
F $\frac{4}{9}$ H 1
G $\frac{2}{3}$ J $1\frac{1}{9}$
49. What is 5% of 40?
A 80 C 8
B 20 D 2
50. What is the simple interest on an investment of \$1500 at 5% for 5 years? The simple interest formula is $I = Prt$.
F \$60
G \$375
H \$3750
J \$6000
51. Subtract. $-15 - 3$
A -18
B -12
C 12
D 18
52. Multiply. $15(-4)$
F -60
G -11
H 11
J 60
53. Simplify. $\sqrt{\frac{64}{100}}$
A $\sqrt{\frac{4}{10}}$ C $\frac{2}{5}$
B $\sqrt{\frac{4}{5}}$ D $\frac{4}{5}$
54. Evaluate $|12 - 14 - 6|$.
F -32 H 8
G -8 J 32

Algebra

55. Simplify the expression. $2 \times (8 - 3) - 6$
A 7
B 4
C 1
D -2
56. Which expression is equivalent to the expression $6(s - 6)$?
F $6s - 6$
G $s - 6$
H $s - 36$
J $6s - 36$
57. Simplify. $18 - c + 9c + 6$
A $24 + 8c^2$
B $32c$
C $24 + 8c$
D $-18c + 15c$
58. Which equation corresponds to the statement "the length ℓ of the rectangle is four times the width w ".
F $w = 4 + \ell$
G $w = 4\ell$
H $\ell = 4w$
J $\ell = 4 + w$
59. Simplify. $5x^3 \cdot 6x^2 \cdot x$
A $30x^6$
B $11x^7$
C $30x^7$
D $11x^3$
60. Evaluate $16 - 3s$ for $s = 5$.
F 15
G 8
H 5
J 1

Algebra

61. Divide. $\frac{9r^3}{2r^2}$
- A $\frac{9r^3}{2r}$
B $\frac{2r^3}{9r^2}$
C $\frac{2}{9r}$
D $\frac{9r}{2}$
62. Simplify. $5g(g - 9h)$
- F $6g^2 - 14gh$
G $5g^2 - 45gh$
H $5g^2 + 5g - 9h$
J $6g^2 - 9h$
63. Simplify. $9x - 4y + 5x - 2y$
- A $8xy$
B $14x^2 - 2y^2$
C $14x - 2$
D $14x - 6y$
64. What is the product of $(y + 2)(y - 8)$?
- F $y^2 + 6y - 16$
G $y^2 - 6y - 16$
H $y^2 - 6y + 16$
J $y^2 + 6y + 16$
65. What is the product of $(2x - 4)(2x + 4)$?
- A $4x^2 - 16$
B $4x^2 + 16x - 16$
C $4x^2 - 16x + 16$
D $4x^2 + 16$
66. Factor $5x^3 - 15x^2$ completely.
- F $5x^2$
G $x^2(5x - 15)$
H $5x^2(x - 3)$
J $3x^2(x - 5)$
67. Factor the polynomial, $x^2 + 5x + 6$, completely.
- A $(x + 6)(x + 1)$
B $(x + 3)(x + 2)$
C $(x - 3)(x - 2)$
D $(x - 6)(x + 1)$
68. Solve for x . $8x = -56$
- F $x = 64$
G $x = 48$
H $x = -8$
J $x = -7$
69. Solve the equation. $14c - 6 = 22$
- A $c = \frac{7}{8}$
B $c = 2$
C $c = 28$
D $c = 308$
70. What value of x makes this equation true? $2x + 18 = 5x$
- F $x = -6$
G $x = 4$
H $x = 2.6$
J $x = 6$
71. Solve for x . $x - \frac{2}{5} = \frac{3}{10}$
- A $x = \frac{1}{10}$
B $x = \frac{1}{5}$
C $x = \frac{2}{3}$
D $x = \frac{7}{10}$