



Mathematics Placement Assessment

Courage, Humility, and Largeness of Heart

Oldfields School

Thank you for taking the time to complete this form accurately prior to returning this mathematics placement assessment.

Name _____

Grade Entering _____

Previous school attended _____

Name

City

Please provide information about the mathematics course you completed last year.

Name of course _____

Level _____

Name of textbook _____

Authors _____

Number of students in this class _____

Grade in course _____

Please list to the best of your ability the topics covered in this class.

Please comment on your progress throughout the year in this course.

Did you use a calculator regularly in your mathematics class? Which one did you use? Explain.

Please list any pertinent information regarding this course that we should know about. Please use the back if necessary.

Mathematics Department

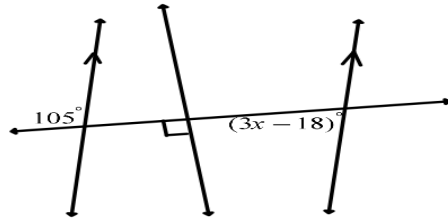
Mathematics Placement Assessment

Directions: You may use a calculator for this assessment. On the questions, please write, "calculator," next to the answer. If you never learned how to do a particular problem, please write, "I did not learn," in the answer space. This assessment covers mathematics topics at a variety of levels. Please work independently.

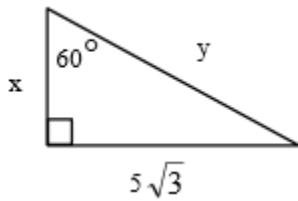
1. You see a jacket in a discount store for \$39.95. You see the same jacket in a sporting goods store for \$9.49 more. How much does the jacket cost in the sporting goods store
2. Write 157,000 in scientific notation.
3. The following portions of three pizzas were left over: $\frac{2}{3}$, $\frac{3}{5}$, and $\frac{3}{4}$. Order these portions from least to greatest
4. A circle has the circumference of 6π . What is the area of this circle?
(Use $\pi = 3.14$)
5. Write the standard equation of the circle with center (1, -3) that passes through the point (2, 2).

6. A rectangular certificate 8 in. by 10 in. will have a frame 1.5 in. wide surrounding it. What is the perimeter of the frame?

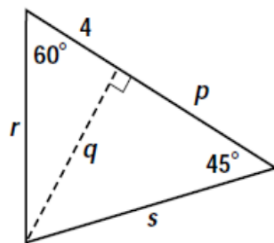
7. Solve for x



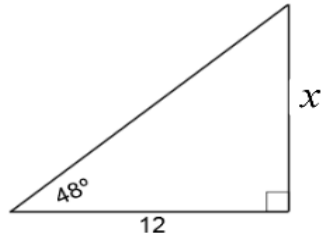
8. Solve for x and y



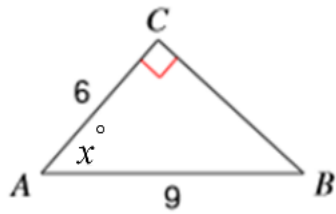
9. Solve for p, q, r, s



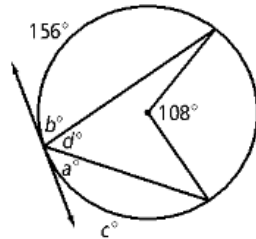
10. Solve for x



11. Solve for x



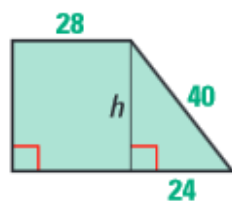
12. Find a, b, c, d .



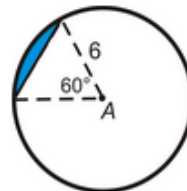
13. l_1 is perpendicular to $3y + 2x = 12$ and contains $P(-1, 5)$. Write the equation for l_1 .

14. Find the area of the shaded region.

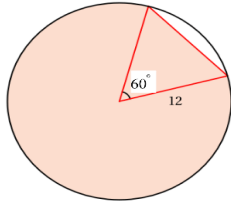
1).



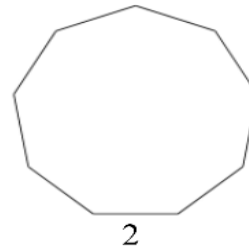
2).



3).

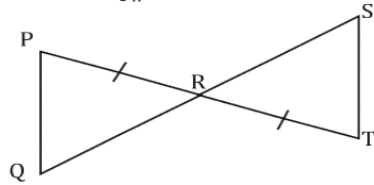


4). Find the area of the following regular polygon. The length of the side is 2.



15. Proof

Given: $\overline{PQ} \parallel \overline{ST}$, $\overline{PR} \cong \overline{TR}$



Prove: $\triangle PQR \cong \triangle TSR$

16. Verify the following trigonometric identity.

$$(\sec^2\theta - 1)/\sec^2\theta = \sin^2\theta$$

17. Which point does *not* lie on the graph of $y = x + 2$?

- a. (2, 4) b. (5, 7) c. (3, 5) d. (4, 7)

18. Which ratio is *not* equal to 2:3?
a. 8 to 12 b. $\frac{40}{60}$ c. 16:24 d. $\frac{12}{16}$
19. What is the surface area of a rectangular solid that has a length of 6 ft., a width of 3 ft., and a height of 2 ft?
20. Between which two consecutive integers does $\sqrt{74}$ lie?
21. Simplify $5n^3 \cdot 4n^{-5}$
22. Evaluate $b^2 - 4ac$ for $a = 5$, $b = -3$, and $c = -8$.
23. What is 7% of 540 pounds of bananas?
24. Simplify: $8y - 2y[y + 6(y + 5)]$

25. Solve $-18 = 74 - k$
26. Solve $5(j - 3) = 7j - 14$
27. Solve $|w + 6| - 8 = 20$
28. A rectangle is 8 inches long and has an area of 96 inches squared. Find the perimeter of the rectangle.
29. Evaluate $-|7| - |-7| - 6 + |-9|$
30. Solve the inequality $3(e - 4) > 4e - 15$
31. A kitten is trapped at the top of a tree. You place a 26-foot ladder 10 feet from the tree. It places you right at the top of the tree where you can rescue the kitten. Draw a sketch showing the ladder and the tree. How tall is the tree?

32. Simplify $\sqrt{18} \cdot \sqrt{30}$

33. Simplify $\frac{-3}{4 - \sqrt{5}}$

34. Solve: $\begin{cases} 4x - y = 8 \\ 2x - 4 = 3y \end{cases}$

35. Find the equation of the line passing through (-4, 2) and (5, 8).

36. Factor: $9y^2 - 25z^2$

37. Factor: $-16u^3v^5 + 24u^4v^2$

38. Solve $x^2 - 7x - 18 = 0$

39. Solve $\frac{1}{4x} + \frac{2}{3} = 5$

40. Simplify $\sqrt{25x^4y^3z^9}$

41. Given, $f(x) = 2x - 4$ and $g(x) = x^2 + 4x$, find each value.

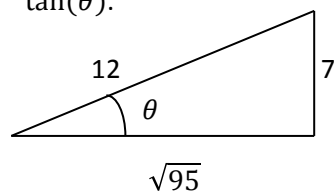
a. $f(4)$

b. $g(f(0.5))$

42. Consider the two points $(6, -7)$ and $(-2, 8)$, find the distance between them and the midpoint.

Trigonometry

43. Given the following right triangle, find the exact value of the $\sin(\theta)$, $\cos(\theta)$, and $\tan(\theta)$.



44. If $\sin\theta = 0.60$, use trigonometric identities to find the value of $\cos\theta$ and $\sec\theta$.
45. Verify the identity $1 + \tan^2(\theta) = \sec^2(\theta)$
46. Find the exact value of: $\sin(42)\cos(12) - \cos(42)\sin(12)$ without a calculator.