

0 (a). Evaluate $2 \times 0 + 1 \times 4$.

0 (b). Let t be TNYWR.

The average of the list of five numbers 13, 16, 10, 15, 11 is m .

The average of the list of four numbers 16, t , 3, 13 is n .

What is the value of $m - n$?

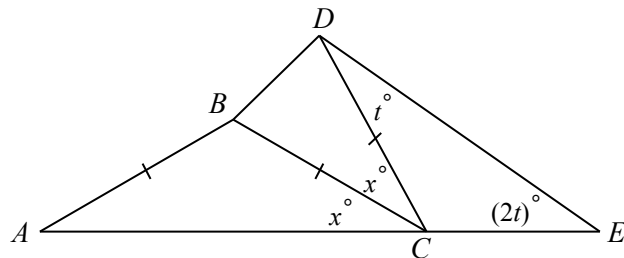
0 (c). Let t be TNYWR.

The lines with equations $y = 12$ and $y = 2x + t$ intersect at the point (a, b) . What is the value of a ?

1 (a). Evaluate $\frac{1}{2} \left(\frac{1}{\frac{1}{9}} + \frac{1}{\frac{1}{6}} - \frac{1}{\frac{1}{5}} \right)$.

1 (b). Let t be TNYWR.
 Determine the positive integer x that satisfies $2 : m : t = m : 32 : x$.

1 (c). Let t be TNYWR.
 In the diagram, C lies on AE and $AB = BC = CD$. If $\angle CDE = t^\circ$, $\angle DEC = (2t)^\circ$, and $\angle BCA = \angle BCD = x^\circ$, determine the measure of $\angle ABC$.



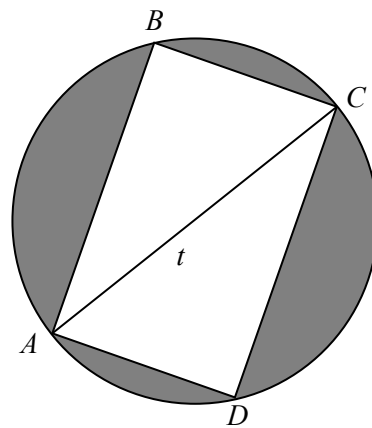
- 2 (a). Suppose that a and b are positive integers with $2^a \times 3^b = 324$. Evaluate $2^b \times 3^a$.

- 2 (b). Let t be TNYWR.

Three siblings share a box of chocolates that contains t pieces. Sarah eats $\frac{1}{3}$ of the total number of chocolates and Andrew eats $\frac{3}{8}$ of the total number of chocolates. Cecily eats the remaining chocolates in the box. How many more chocolates does Sarah eat than Cecily eats?

- 2 (c). Let t be TNYWR.

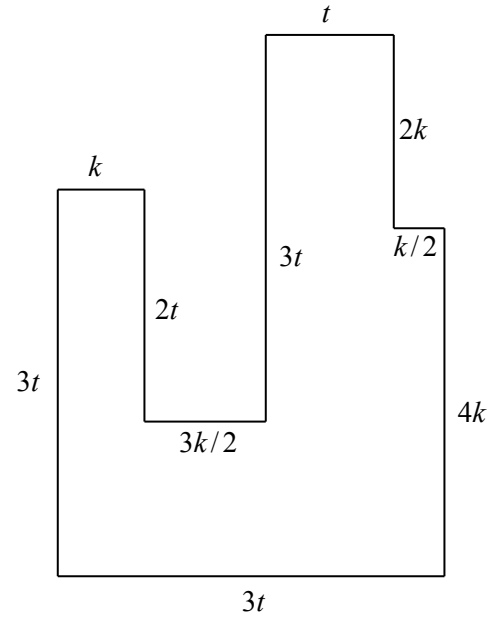
In the diagram, the vertices of rectangle $ABCD$ lie on a circle. Diagonal AC is a diameter of the circle and has length t . If $CD = 2AD$, find the area of the shaded region, and write your answer in the form $a\pi - \frac{b}{c}$ with a, b, c positive integers and with b and c having no common positive divisor larger than 1.



3 (a). What is the greatest common divisor of the three integers 36, 45 and 495?

3 (b). Let t be TNYWR.

In the diagram, all line segments meet at right angles. If the perimeter of the given shape is 162 units, what is the value of k ?



3 (c). Let t be TNYWR.

The expression $(tx + 3)^3$ can be re-written in the form $ax^3 + bx^2 + cx + d$ for some positive integers a, b, c, d . Determine the value of the largest of a, b, c , and d .