You are given three pieces of yarn, each of length 25π. With each piece you are asked to form one of each of the three different shapes; a circle, an equilateral triangle and a square, using a whole piece of yarn for each.
Let:

  r = the radius of the circle
  a = the area of the equilateral triangle
  d = diagonal of the square.

Find the value of $\dfrac{d^2}{ar}$

Given that $S = \dfrac{x^3 - 125}{x+5}$, $C = \dfrac{x^2 + 4x - 5}{x^5 - x^3 - x^2 + 1}$, and $U = \dfrac{x^4 + x^3 - x - 1}{x^2 - 25}$.

Find CSU in simplest form.

Write the equation of the line which has incline is $30°$ and which shares a y-intercept with the line $\sqrt{3}\,x - y + 5\sqrt{3} = 2$

Write the equation in the form $Ax + By + C = 0$ with $A = 1$.

A function g is given as $g(x) = x^2 - 5$.

A function f is given as $f(x) = -x^2 + 2x + 2$

Find the intersection of the range of g and the range of f.

A circle of area 24π is inscribed in a triangle of perimeter 64.

Find the area of the triangle.

$A = i^{-8}$, where $i = \sqrt{-1}$

$B =$ the product of the roots of $2x^2 - 153x + 6A$, where A has been calculated above

$C = \log_B 5 + \log_B \dfrac{81}{5}$, where B has been calculated above.

$D =$ the sum of the infinite series with first term B and common ratio A/C.

Find D.

Find $A \cap B$ where: A is the solution set of $\dfrac{x^2 - 9}{3x} \geq 0$ and

B is the solution set of $\dfrac{3}{x-2} - \dfrac{5}{x-6} < 0$.

If $log\ 7 = a$ and $log\ 3 = b$,

then $c = log\left(\dfrac{63}{100}\right) + log\left(\dfrac{30}{49}\right)$ can be expressed most simply as c = ?

The number of moose varies directly as the number of deer and inversely as the square of the number of elk.
When there were 10 deer and 20 elk, there were 25 moose.

How many moose were there when there were 30 deer and two elk.

The probability of seeing an elk or being confused or both was 0.85. If the probability of seeing an elk was 0.4 and the probability of being confused was 0.7, then:

a = the probability of seeing an elk and being confused.
b = the value in parentheses of the true statement below:
  (2) Seeing an elk and being confused are mutually exclusive events.
  (3) Seeing an elk and being confused are independent events.
  (4) Seeing an elk and being confused are neither mutually exclusive nor independent events.

Find the value of a + b

Given that $A = (1-i)^8$, *where* $i = \sqrt{-1}$,

B = the sum of the complex roots of $x^2 + 16$,

$C = \dfrac{1-i}{2+i}$,
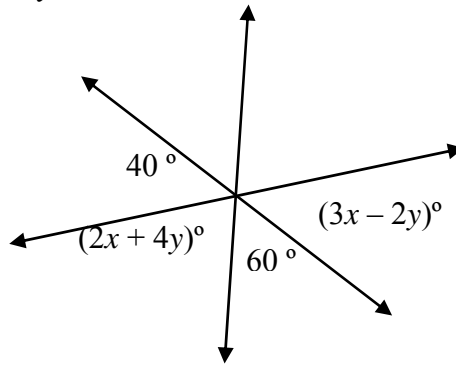
$D = (2-i)(-1+2i).$

Find the value of $\dfrac{A+B}{CD}$.

Find the value of *xy*:

40 °

$(3x - 2y)$°

$(2x + 4y)$°

60 °
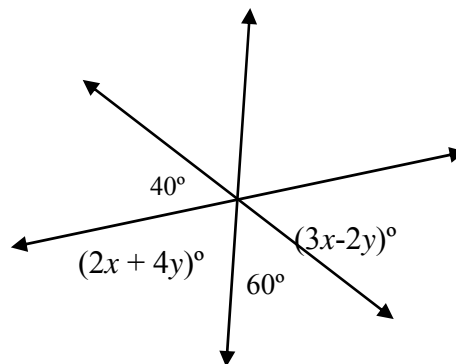
G = The middle term of the expansion $(2x^2 - 3b^4)^{12}$

H = The number of sub-teams of seven taken from a team of 12 members.

Find $\dfrac{G}{H}$

Ahmed needed to finish with an answer of $3\sqrt{2}$ but, his answer was $\dfrac{2}{\sqrt{6}}$.

What multiplier was needed to multiply his answer to get the answer he needed?

The length of a rectangle is increased by 20 percent, and the width of the same rectangle is decreased by 20 percent.
What is the percent change in the area?