

Find the greatest common factor (gcf) of each.

1) $36x^3y^2z + 84x^2y^2z^4$

2) $9t^2 + 9t + 18$

3) $63m^5y^{10}z - 51m^3y^9z^5 + 123my^8z$

4) The area of a rectangle is given by the expression $x^2 - 16x + 63$. Find the length and width of this rectangle by factoring.

5) The lengths of a rectangle are represented by binomial factors. If the area of the rectangle is 50 and the width is 5 less than the length, then what are the dimensions of the rectangle as binomials?

Answers:

1) $12x^2y^2z(3x + 7z^3)$

36 and 84 divisible by 12
both terms have x^2, y^2 and z

2) $9(t^2 + t + 2)$

$9t^2 + 9t + 18 = 9(t^2 + t + 2)$

3) $3my^8z(21m^4y^2 - 17m^2y^2z^4 + 41)$

63, 51 and 123 divisible by 3
all 3 terms have m, y^8 and z

4) $(x-9)(x-7)$

5) $(x-10)(x+5)$

4) $x^2 - 16x + 63$

$(x-9)(x-7)$

x

$\begin{array}{r} 63 \\ -9 \quad -7 \\ \hline -16 \end{array}$

5) $A = 50$ $x-5$

$\begin{array}{r} -50 \\ -10 \quad 5 \\ \hline -5 \end{array}$

$A = 50 = x(x-5)$
 $50 = x^2 - 5x$
 -50

$0 = x^2 - 5x - 50$

$(x-10)(x+5)$

remember you can check your work by redistributing the GCF.