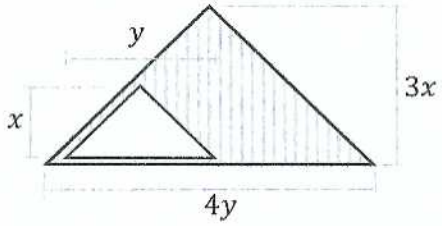
Direct, Inverse, Joint, and Combined Variation

Solve.

1) When x is 7 and y is 4, find the constant of variation and an equation that inversely relates y and x.

2) Refer to the figure on the right. Write an equation to represent the area of S, Identify the type of variation and the constant of variation.



3) y varies jointly as x and z. If $y = 12$ when $x = 9$ and $z = 8$, find y when $x = 16$ and $z = 9$.

4) y varies jointly as x and z. If $y = 18$ when $x = 2$ and $z = 3$, find y when $x = 7$ and $z = 8$.

5) We know that y varies directly with x and inversely with z. Given that $y = 20$ when $x = 10$ and $z = 6$, find y when $x = 20$ and $z = 5$.

6) For the combined variation equation of $y = 4\frac{x}{z}$, find x when $y = 3$ and $z = 8$.