

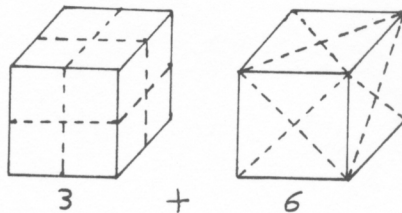


The answer to each question is in parenthesis at the beginning of each solution.

1) (1) ${}_6R_5 = 24+1-10 = 15$. ${}_4R_x = 16+1-2x$. $15 = 17 - 2x$; $x = 1$.

2) (c or $\frac{x}{8}$) $2^{k-3} = 2^k \div 2^3 = \frac{x}{8}$.

3) (9)



4) (d or $8(4-\pi)$) The area of the rectangle is $8 \times 4 = 32$. The area of the 2 circles is $2(4\pi) = 8\pi$. The area of the shaded region is $32-8\pi = 8(4-\pi)$.

5) (6) $\frac{x}{2 \cdot \frac{1}{x}} = \frac{x}{\frac{2}{x}} = \frac{x^2}{2} = 18$. $x^2 = 36$; $x = 6$.

6) (9, 81, 484) "I" can be 1, 4 or 9. "am" can be 36 or 81 since $3+6 = 3^2$ and $8 + 1 = 3^2$. "Nan" can be 121 or 484 since $1+2+1 = 2^2$, $4+8+4 = 4^2$. (121 & 484 are the only 2 perfect squares from the list where the hundred's digit is the same as the unit's digit.) "a" in "am" can be 3 or 8, "a" in "Nan" can be 2 or 8. Thus, "a" is 8. "am" is 81, "Nan" is 484 and "I" is 9.