

Algebra – Substitution

For the values $v = 12$, $w = 25$, $x = 3$, $y = 144$ and $z = 64$, answer the following questions by using substitution. Show your working by replacing each of the letters with the relevant number before calculating your final answer.

Section A: Calculators not allowed.

1 $v + w + x + y + z =$

2 $3v + 9w - 6x =$

3 $4z - 2xv =$

4 $3v + 4w + 5x + 6y - 7z =$

5 $\frac{w}{y} \times \frac{v}{3w} =$

6 $\frac{3v}{y} \div \frac{z}{v} =$

7 $\frac{9}{3v} + \frac{y}{xz} =$

8 $3(4v + 7) =$

9 $x(3x + y) =$

10 $\sqrt{y} + \sqrt{w} =$

11 $\sqrt{v + x^2 + y + \frac{v}{x}} =$

12 $4\sqrt{\frac{y}{xv}} =$

13 $\frac{8^3}{2z} =$

14 $\left(\frac{5x^2}{\sqrt{w}}\right)^3 =$

15 $\left(\frac{2}{3}v\right)^2 - \frac{1}{2}z =$

16 $\frac{\sqrt{9w}}{x} =$

17 $5z(x + 3) =$

18 $120 - 3w \times x + 8 =$

19 $v \div y - x \times w + z =$

20 $v \div (y - x) \times (w + z) =$

Section B: Use a calculator if you must.

1 $\sqrt{\frac{y}{x} - \frac{z}{v}} =$

2 $6 \cos(y) =$

3 $\sin\left(\frac{3w}{y}\right) =$

4 $(w + 2v)^2(3y \div 3x)^3 =$

5 $\frac{3w}{\sqrt{x}} \times \frac{8}{\sqrt{v}} =$