

SUBSTITUTION - VERSION A

ORDER OF OPERATIONS	
1. PARENTHESES OR BRACKETS () OR []	↓
2. EXPONENTS $3^2 = 3 \times 3$	
3. MULTIPLICATION AND DIVISION $\times \div$ <i>LEFT TO RIGHT</i>	
4. ADDITION AND SUBTRACTION $+$ $-$	

LEVEL 3 MATH CRUSH

ANSWERS - VERSION A

USE THE ORDER OF OPERATIONS TO FIND THE VALUE OF $(5i + 9) - i^2$ IF $i = 4$.

$$\begin{aligned} (5i + 9) - i^2 &= (5 \times 4 + 9) - (4 \times 4) \\ &= (20 + 9) - (16) \\ &= 29 - 16 \\ &= 13 \end{aligned}$$

FIND THE VALUE OF EACH EXPRESSION IF $h = 8$.

- | | | |
|--------------------------------|--------------------------|------------------------|
| 1. $(3h - 16) + 13$ | 2. $16 + 16 \div h$ | 3. $h \cdot (18 - 2h)$ |
| 21 | 18 | 16 |
| 4. $\frac{h}{4} + (5 \cdot h)$ | 5. $(h + 16) - (12 - h)$ | 6. $\frac{h + 10}{9}$ |
| 42 | 20 | 2 |

FIND THE VALUE OF EACH EXPRESSION IF $x = 16$, and $s = 2$.

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|-------------------------|---------------------------------|---------------------|
| 7. $(x - 3) - (2s + 9)$ | 8. $x - s + s$ | 9. $s^3 + (28 - x)$ |
| 0 | 16 | 20 |
| 10. $x \div s \cdot 2$ | 11. $\frac{x}{s} - \frac{s}{s}$ | 12. $(11 + 3s) - x$ |
| 16 | 7 | 1 |

FIND THE VALUE OF EACH EXPRESSION IF $a = 10$, $b = 5$, and $c = 20$.

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|-------------------------|---|-------------------------|
| 13. $\frac{bc}{a} + 3b$ | 14. $(2c - 23) + b^3$ | 15. $c + a \div 5 - 3$ |
| 25 | 142 | 19 |
| 16. $a^2 + b^2 - 15$ | 17. $\frac{5abc}{2abc} - \frac{3abc}{2abc}$ | 18. $(c - b) - (a + b)$ |
| 110 | 1 | 0 |

FIND THE VALUE OF EACH EXPRESSION IF $m = 3$, $t = 12$, and $z = 4$.

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|---|--------------------------------|---------------------------------------|
| 19. $\frac{z}{m} - \frac{5}{t} + \frac{m}{z}$ | 20. $\frac{mz}{t} + 2t - m^2$ | 21. $\frac{2mt}{4m} - \frac{3tz}{6z}$ |
| $1\frac{2}{3}$ | 16 | 0 |
| 22. $(m^3 + t^2) \div m^2 - z$ | 23. $m \cdot t \div z \cdot m$ | 24. $(t + z) \div (t - z)$ |
| 15 | 27 | 2 |