

LHF STUDY GUIDE PASS THE HiSET® MATH TEST!

ALGEBRA

Substitution Quiz Lessons 5 & 6 Answers – p. 2

- Evaluate the expression $x^2 + 4x - 6$ when $x = 5$.
a) 24 b) 39 c) 51 d) 36 e) 26
- What is the value of $2x^2 - y^2 + 10$ when $x = 4$ and $y = 6$?
a) 14 b) -4 c) 78 d) 68 e) 6
- Calculate the value of $\sqrt{6x - 4y}$ when $x = 4$ and $y = 5$.
a) 2 b) 4 c) 6.6 d) 44 e) 19
- What is the solution to $3x - 8 = 1$?
a) $x = 1$ b) $x = 2$ c) $x = 3$ d) $x = 4$ e) $x = 5$
- If $y = 5$ and $x^2 - y^2 + 3x = 45$, what is the value of x ?
a) $x = 6$ b) $x = 7$ c) $x = 8$ d) $x = 9$ e) $x = 10$
- If $x^2 - 20 = 3x + 20$, then $x =$?
a) $x = 10$ b) $x = 12$ c) $x = 8$ d) $x = 18$ e) $x = 15$
- If $\frac{4}{5}x = 12$, then $x =$?
a) $x = 10$ b) $x = 20$ c) $x = 25$ d) $x = 15$ e) $x = 5$
- If $\frac{x}{40} = \frac{1}{8}$, what is the value of x ?
a) $x = 10$ b) $x = 12$ c) $x = 4$ d) $x = 8$ e) $x = 5$
- Solve the equation $\sqrt{12x + 21} = 15$.
a) $x = 17$ b) $x = 18$ c) $x = 19$ d) $x = 21$ e) $x = 23$
- What is the value of x if the average of x , 18, and 16 is 18 ?
a) $x = 26$ b) $x = 20$ c) $x = 17.3$ d) $x = 30$ e) $x = 15$

ANSWER KEY Algebra Substitution Quiz

1. Evaluate the expression $x^2 + 4x - 6$ when $x = 5$. **Answer = 39**

- a) 24 **b) 39** c) 51 d) 36 e) 26

$$\begin{aligned}x^2 + 4x - 6 \\5^2 + 4(5) - 6 \\25 + 4(5) - 6 \\25 + 20 - 6 \\39\end{aligned}$$

2. What is the value of $2x^2 - y^2 + 10$ when $x = 4$ and $y = 6$? **Answer = 6**

- a) 14 b) -4 c) 78 d) 68 **e) 6**

$$\begin{aligned}2x^2 - y^2 + 10 \\2(4^2) - 6^2 + 10 \\2(16) - 36 + 10 \\32 - 36 + 10 \\6\end{aligned}$$

3. Calculate the value of $\sqrt{6x - 4y}$ when $x = 4$ and $y = 5$. **Answer = 2**

- a) 2** b) 4 c) 6.6 d) 44 e) 19

$$\begin{aligned}\sqrt{6x - 4y} \\ \sqrt{6(4) - 4(5)} \\ \sqrt{24 - 20} \\ \sqrt{4} \\ 2\end{aligned}$$

4. What is the solution to $3x - 8 = 1$? **Answer: $x = 3$**

- a) $x = 1$ b) $x = 2$ **c) $x = 3$** d) $x = 4$ e) $x = 5$

$$\begin{aligned}3x - 8 = 1 \\3(\mathbf{3}) - 8 = 1 \\9 - 8 = 1 \\1 = 1\end{aligned}$$

5. If $y = 5$ and $x^2 - y^2 + 3x = 45$, what is the value of x ? **Answer: $x = 7$**

- a) $x = 6$ **b) $x = 7$** c) $x = 8$ d) $x = 9$ e) $x = 10$

$$\begin{aligned}x^2 - y^2 + 3x = 45 \\x^2 - 5^2 + 3x = 45 \\7^2 - 5^2 + 3(\mathbf{7}) = 45 \\49 - 25 + 3(7) = 45 \\49 - 25 + 21 = 45 \\45 = 45\end{aligned}$$

6. If $x^2 - 20 = 3x + 20$, then $x = ?$ **Answer: $x = 8$**

- a) $x = 10$ b) $x = 12$ **c) $x = 8$** d) $x = 18$ e) $x = 15$

$$x^2 - 20 = 3x + 20$$

$$8^2 - 20 = 3(8) + 20$$

$$64 - 20 = 24 + 20$$

$$44 = 44$$

7. If $\frac{4}{5}x = 12$, then $x = ?$ **Answer: $x = 15$**

- a) $x = 10$ b) $x = 20$ c) $x = 25$ **d) $x = 15$** e) $x = 5$

$$\frac{4}{5}x = 12$$

$$\frac{4}{5}(15) = 12$$

$$12 = 12$$

8. If $\frac{x}{40} = \frac{1}{8}$, what is the value of x ? **Answer: $x = 5$**

- a) $x = 10$ b) $x = 12$ c) $x = 4$ d) $x = 8$ **e) $x = 5$**

$$\frac{x}{40} = \frac{1}{8}$$

$$\frac{5}{40} = \frac{1}{8}$$

reduce

OR solve proportion: $40 \times 1 \div 8 = 5$

$$\frac{1}{8} = \frac{1}{8}$$

9. Solve the equation $\sqrt{12x + 21} = 15$. **Answer: $x = 17$**

- a) $x = 17$** b) $x = 18$ c) $x = 19$ d) $x = 21$ e) $x = 23$

$$\sqrt{12x + 21} = 15$$

$$\sqrt{(12)(17) + 21} = 15$$

$$\sqrt{204 + 21} = 15$$

$$\sqrt{225} = 15$$

$$15 = 15$$

10. What is the value of x if the average of x , 18, and 16 is 18? **Answer: $x = 20$**

- a) $x = 26$ **b) $x = 20$** c) $x = 17.3$ d) $x = 30$ e) $x = 15$

$$(x + 18 + 16) \div 3 = 18$$

$$(20 + 18 + 16) \div 3 = 18$$

$$54 \div 3 = 18$$

$$18 = 18$$