Algebra Book Answers

[3] Substitution

1. $2x+13 = 2(5)+13 = 23$

$5x-5 = 5(5)-5 = 20$

$3+6x = 3+6(5) = 33$

2. a) $2a+ay = 2(5)+5(-3)$

$= 10-15 = -5$

b) $5t^2-7 = 5(-2)^2-7$

$= 20-7 = 13$

3. $A = \frac{h(x+10)}{2}$

$\frac{15}{1} \rightarrow \frac{h(5+10)}{2}$

$\cdot\ h(5+10) = 15 \times 2$

$15h = 30 \rightarrow h = \frac{30}{15} = 2$

4. a) $5x = 5(8) = 40$

b) $3(8)-(8) = 16$

c) $(8)^2 = 64$

5. a) $y = -7+9 = 2$

b) $-7 = x+9$

$x = -7-9 = -16$

6. a) $y = 2(2)^3+10 = 26$

b) $y = 2(-2)^3+10 = -6$

c) $y = x^2$

7. When x is 8, $4x$ is 32

. When x is 12, $4x$ is 48

. When x is 8, $6x$ is 48

8. a) $a+b = 5$

$a+2b = 8$

b) $2a = 6 \rightarrow a = \frac{6}{2} = 3$

$a+b = 7 \rightarrow b = 7-a$

$= 7-3$

$\cdot\ b = 4$

9. a) $x = 10$, $y = 20$

$x = 12$, $y = 18$

"Many possible answers"

b) $b = 10$

10. $2n$ is equal to $10 \rightarrow$ "$n+5$"

$2+n$ is less than $8 \rightarrow n+4$

$n+5$

n^2 is less than $30 \rightarrow n+4$

$n+5$

11. i) Multiply x by 3 and add 5 , $y = 3x+5$

ii) Multiply x by 2 and subtract 3 , $y = 2x-3$

iii) Divide x by 2 and add 3

$y = \frac{x}{2} + 3$

" Many possible answers"

12. $\frac{2y}{x+1} = \frac{2 \times 10}{3+1} = \frac{20}{4} = 5$

yes

13. $8+K = 18$

$3K = 30$

$K^2 = 100$

14. $y \rightarrow 2y \rightarrow y^2$

$3 \rightarrow 6 \rightarrow 9$

$2 \rightarrow 4 \rightarrow 4$

$6 \rightarrow 12 \rightarrow 36$

15. i) $5(6)+2 = 32$

ii) $5(6+2) = 5 \times 8 = 40$

16. $x = 2$, $x+3 = 5$

$x = 5$, $3x = 15$

$x = 9$, $\frac{x}{3} = 3$

" Many possible answers"

17. a) $a = 1$, $b = 24$

$a = 2$, $b = 12$

$a = 3$, $b = 8$

$a = 4$, $b = 6$

b) $a = 4$, $b = 6$

or

$a = 6$, $b = 4$

18. -2

19. $a+c \longrightarrow a^2$

$3c-2b \longrightarrow 2c+b$