Section 3.1 Exercises Part B

Simplify.

1. $4s(t-9) - t(s+11)$

2. $12(x^2-5n) + 3n - 4x^2$

3. $6nj - 7j + 8nj + 11n$

Solve.

4.1

4. $5\left(\dfrac{6x-4}{5} + 2\right) = 30$

5. $7\left(\dfrac{-2x+8}{6} + 5\right) - 2 = 12$

6. $-3 - 7m = 18$

7. $\frac{7}{2}t = -14$

8. $-15 = 3x + 9$

9. $\dfrac{2x-7}{3} = 33$

10. $t + 5t + 4t - 7 = 17$

11. $9\left(\dfrac{5x-8}{6} + 7\right) - 3 = 42$

Solve for the specified variable.

12. $y = mx + b$ for x

13. $\dfrac{5m+9}{2} = r$ for m

14. $6 = 7b - pb$ for b

15. $3t + nt = y$ for t

16. $P = 2l + 2w$ for l

17. $SA = 2\pi rh + 2\pi r^2$ for h

4.2
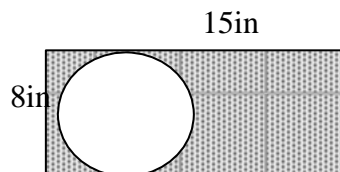
18. 27 is 6 more than 3 times a number. What is the number?

19. 18 less than 5 times a number is 52. What is the number?

20. Two numbers add to 37 and the second is 9 bigger than the first. What are the two numbers?

21. Two numbers add to 238 and the first is 34 bigger than the second. What are the two numbers?

22. Find the area of the shaded region:

15in

8in

23. I have created a triangular garden such that the largest side is 6ft less than twice the smallest and the medium side is 5ft larger than the smallest side. If the total perimeter of the garden is 47ft, what are the lengths of the three sides?

24. If a rectangle's length is 5 more than twice the width and the perimeter is 46 mm, what are the dimensions or the rectangle?

25. If a cone has a Lateral Surface Area of 250 in^2, a radius of 8in, what is the slant height of the cone? Use a calculator.

26. Two numbers add to 589 and the first is 193 bigger than the second. What are the two numbers?

27. If a cylinder has a volume of 538 cm^3 and a radius of 6 cm, how tall is it?

28. Find the missing variable for a rectangle:
$$P = 39 \text{ ft}$$
$$w = 7.2 \text{ ft}$$
$$l =$$

29. Find the missing variable for a cylinder:
$$SA = 800 \text{ in}^2$$
$$h =$$
$$r = 9 \text{ in}$$

Solve.

4.3

Example:

$x + 4 - 5x = 7x + 1$	Combine like terms
$-4x + 4 = 7x + 1$ $+4x \qquad +4x$	Get all x's together by adding 4x to both sides
$4 = 11x + 1$ $-1 \qquad -1$	Subtract 1 from both sides
$3 = 11x$	
$\frac{3}{11} = x$	Divide both sides by 11

30. $4p + 2 = 7p - 6$

31. $-4n + 5 = n$

32. $2x - 7 = x + 5$

33. $x - 42 = 15x$

34. $-4(x\text{-}3) = -2x + 12$

35. $7x = 13 + 7x$

36. $.4x - 1 = .9x + 5$

37. $2(x - 4) = 3x - 14$

38. $.4y + 78 = 78 + .4y$

Answers:

1. $3st - 36s - 11t$

2. $8x^2 - 57n$

3. $14nj - 7j + 11n$

4. $x = 4$

5. $x = 13$

6. $m = -3$

7. $t = -4$

8. $x = -8$

9. $x = 53$

10. $t = \frac{12}{5}$ or 2.4

11. $x = -\frac{4}{5}$

12. $x = \dfrac{y - b}{m}$

13. $m = \dfrac{2r - 9}{5}$

14. $b = \dfrac{6}{7 - p}$

15. $t = \dfrac{y}{3 + n}$

16. $l = \dfrac{p - 2w}{2}$

17. $h = \dfrac{SA - 2\pi r^2}{2\pi r}$

18. 7

19. 14

20. 14, 23

21. 102, 136

22. 69.73 in^2

23. 12, 17, 18

24. $l = 17$mm; $w = 6$mm

25. $\ell = 9.95$ in

26. 198, 391

27. 4.75 cm

28. $l = 12.3$ ft

29. $h = 5.15$ in

30. $p = -$ or 2.67

31. $n = 1$

32. $x = 12$

33. $x = -3$

34. $x = 0$

35. No solution

36. $x = -12$

37. $x = 6$

38. All numbers