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Chapter 4 Review Part 1

Principles of Mathematics 9, pages 230–231

1. Solve using pencil and paper.

a) $x + 5 = 9$

b) $f - 7 = 3$

c) $3h = 15$

d) $\frac{k}{4} = 3$

2. Solve ~~using a Computer Algebra System (CAS)~~.

a) $2x + 5 = 11$

b) $3y - 5 = -8$

c) $10 + 4f = -34$

d) $-5m - 3 = 12$

3. Solve

Find the root of each equation using any method. Express fraction answers in lowest terms. Check each answer.

a) $5x + 2 = 12$

b) $3p + 8 = 5$

c) $4 + 6w = 2$

d) $-6 + 4u = -3$

4. John has $23.65 to spend on a book and magazines. The book costs $5.95. The magazines cost $2.95 each.

a) Write an equation that models the number of magazines that John can afford.

b) Solve the equation.

5. Solve using pencil and paper.

a) $5x + 4 = 2x + 13$

b) $4c - 3 = 2c + 5$

c) $-3r + 7 = -5r - 3$

d) $-6g - 4 = -3g + 2$

6. Solve ~~using a CAS.~~

a) $2a + 5 = 6a + 9$

b) $3b - 7 = b + 5$

c) $5n + 8 = 8n - 10$

d) $-7d + 3 = -3d + 11$

7. A triangle has angle measures that are related as follows:

- The largest angle is 12 times the smallest angle
- The middle angle is 5 times the smallest angle.

Find the measures of the angles.

8. Find the root of each equation using pencil and paper. Check each root.

a) $\frac{1}{2}(x + 3) = 5$

b) $\frac{b - 5}{7} = 3$

c) $6 = \frac{2}{3}m - 1$

d) $-5 = \frac{3d + 4}{3}$

W

Chapter 4 Review Part 2

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9. Find the root of each equation using a CAS. Check each root.

a) $4 = \frac{5r+7}{3}$

b) $\frac{1}{3}(p+5) = 2p-3$

c) $3q+15 = \frac{1}{2}(q-5)$

d) $\frac{2b+5}{4} = 3$

10. Find the solution to each equation.

a) $\frac{x-5}{3} = \frac{x+4}{4}$

b) $\frac{3}{4}(y-2) = \frac{2}{3}(y+1)$

c) $\frac{b+5}{3} = \frac{b-3}{5}$

d) $\frac{3}{5}(v+2) = \frac{1}{2}(v-3)$

11. Rearrange each formula to isolate the variable indicated.

a) $F = ma$	for m	(motion)
b) $V = IR$	for I	(voltage)
c) $A = \pi r^2$	for r	(area of a circle)
d) $P = 2l + 2w$	for w	(perimeter of a rectangle)
e) $y = mx + b$	for x	(linear relations)

12. The power, P, in an electric circuit is related to the voltage, V, and resistance, R, by the formula $P = \frac{V^2}{R}$.

a) Find the power, in watts (W), when the voltage is 100 V (volts) and the resistance is 50 Ω (ohms).

b) What is the resistance of a circuit that uses 100 W of power with a voltage of 20 V?

c) The resistance of a circuit is 15 Ω. The same circuit uses 60 W of power. Find the voltage in the circuit.

13. The total of three cousins' ages is 48. Suresh is half as old as Hakima and 4 years older than Saad. How old are the cousins?

14. Adila sells T-shirts at a rock concert. She earns $8.00/h, plus $0.50 for each T-shirt she sells.

a) How much will Adila earn in a 4-h shift if she sells 35 T-shirts?

b) How many T-shirts must Adila sell to earn $80 in a 6-h shift?

15. Ramesh sells hot dogs at a ball game. He earns $8.50/h, plus $0.35 for each hotdog he sells.

a) How much will Ramesh earn in a 4-h shift if he sells 52 hot dogs?

b) How many hot dogs must Ramesh sell to earn $103 in an 8-h shift?

c) How many hot dogs must Ramesh sell to earn $79 in a 6-h shift?

X

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Factoring, Common Factors - When factoring, the first thing to check for is a common factor. A common factor is a term (integer, variable, or both) that can be divided evenly into each term of the polynomial. To factor a problem that has a common factor:

1. determine the common factor that will divide evenly into each term
2. put that common factor under the polynomial
3. divide the common factor into each term in the polynomial
4. put the quotient inside one set of parentheses.

Complete all questions

Examples

$3x + 12$	$6a + 5ab$	$4y^2 - 8y$	$12x^2y - 16xy^2 + 24y^3$
$3(x + 4)$	$a(6 + 5b)$	$4y(y - 2)$	$4y(3x^2 - 4xy + 6y^2)$

(The first term is the common factor, what is inside the parentheses is the other factor.)

Factor

1. $3x + 6$
2. $4x + 6$
3. $3x - 12$
4. $6x + 8$
5. $4x - 10$
6. $2x - 5xz$
7. $7y - 3yb$
8. $4a + 5ab$
9. $7b + 6bC$
10. $6c - 7cd$
11. $3a + 9a^2$
12. $5z + 20z^2$
13. $4y - 10y^2$
14. $6x + 8x^2$
15. $3y - 15y^2$
16. $12R - 16R^2 + 8R^3$
17. $a^2b - ab + ab^2$
18. $x^3y + 2x^2y^2 - xy^3$
19. $24a^2b - 3ab + 9ab^2$
20. $30rs - 20r^2s^2 + 40r^3s^3$

Review of Common Factors

1. $8x - 16$
2. $3xy + 4x$
3. $2x^2 + 8x$
4. $6a^3 + 3a^2 - 12a$
5. $3x + 12$
6. $2x + 5xz$
7. $7x^2 + 28x$
8. $6y^3 + 9y^2 + 15y$
9. $8x^2 - 2x$
10. $12x^3 + 8x^2 - 4x$
11. $8 + 8a$
12. $4bx - 5b$
13. $4y^2 - 14y$
14. $7y - 8ay$
15. $a^3b - 3a^2b^2 - ab^3$
16. $3a^3 - 75a$

Y