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2 ALGEBRA
2.10 SOLVING EQUATIONS
2.10 LEVEL 3

NAME:_____

Skill description: Introduction of variables & solving equations with the multiplication/division of integers.

Essential Revision

1.
$$0 + 3 =$$

2. Solve for the unknown.
$$\blacksquare + 3 = 9$$

3. Solve the equation.
$$x + 11 = 18$$

4.
$$8 + 4 =$$

5. Solve for the unknown.
$$\blacksquare + 4 = 70$$

6. Solve the equation.
$$y - 4 = 12$$

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7.

$$13 + 1 =$$

8. Solve for the unknown.

$$\blacksquare + 1 = 22$$

9. Solve the equation.

$$p + 9 = 19$$

10.

$$7 + 5 =$$

11. Solve for the unknown.

$$\blacksquare + 5 = 16$$

12. Solve the equation.

$$m - 4 = 7$$

Solutions can be found at the end of the booklet.

score $\dfrac{}{\mathbf{12}}$

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STRATEGIES TO SOLVE THE PROBLEMS

Strategy 1 – Apply the inverse operation to both sides.

For any constants on the same side of the equal sign as the desired variable, apply the inverse operation (of that constant) to both sides of the equation.

Example 1

Find the value of the variable.

$$4x = 12$$

Take the number (4) on the same side as the variable and apply the inverse operation $(\div)$ to both sides of the equation.

$$4x = 12$$

$$\div 4 = \div 4$$

$$------$$

$$x = 3$$

For any constants on the same side of the equal sign as the desired variable, move to the other side and apply the inverse operation.

Example 2

Find the value of the variable.

$$5x = 35$$

Take the 5 and move it to the other side of the equation and change the sign from $\times$ to $\div$. Remember that 5 is connected to the x by multiplication.

$$5x = 35$$

$$x = \frac{35}{5}$$

$$x = 7$$

Choose a value to substitute for the variable, calculate and compare both sides of the equation. Adjust the input value until both sides are equal.

Example 3

Find the value of the variable.

$$3x = 18$$

Choose 5 as the input value.

$$3x = 18$$

$$3(5) = 18$$

$$15 = 18$$

The left-hand side equals 15, which is too low! We're trying to achieve the value of 18 so we need to increase our input value.

Choose 6 as the input value.

$$3x = 18$$

$$3(6) = 18$$

$$18 = 18$$

Spot on! So, the value of x is 6.

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1.

$$5x = 35$$

2.

$$4y = 16$$

3.

$$3p = 15$$

4.

$$2m = 22$$

5.

$$7x = 56$$

6.

$$6r = 24$$

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7.

$$8y = 24$$

8.

$$9t = 90$$

9.

$$7h = 49$$

10.

$$12z = 72$$

11.

$$3f = 27$$

12.

$$8g = 32$$

score $\overline{12}$

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MASTERY TEST

I'VE COMPLETED

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LEVELS THIS YEAR

Solutions to Essential Revision

1. 3	2. ■ = 6
3. $x = 7$	4. 12
5. ■ = 66	6. $y = 16$
7. 14	8. ■ = 21
9. $p = 10$	10. 12
11. ■ = 11	12. $m = 11$

Solutions to Questions

1. $x = 7$	2. $y = 4$
3. $p = 5$	4. $m = 11$
5. $x = 8$	6. $r = 4$
7. $y = 3$	8. $t = 10$
9. $h = 7$	10. $z = 6$
11. $f = 9$	12. $g = 4$

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