SOLVE 1-STEP EQUATIONS (×/÷)

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

Multiplication and division are inverse operations.

$6 \times 4 = 24$ so $24 \div 4 = 6$

Use the inverse to find a missing number.

24			
6	6	6	6

1 Write the missing number.

a) $\square \times 5 = 35$

b) $8 \times \square = 72$

c) $\square \div 3 = 6$

d) $40 \div \square = 8$

2 Work backwards to find each input.

a) $\square \rightarrow \times 4 \rightarrow 28$

b) $\square \rightarrow \div 2 \rightarrow 9$

c) $\square \rightarrow \times 10 \rightarrow 130$

3 Find the missing numbers in each bar model.

a)

45				

b)

12	12	12

4 Solve these problems.

a) 6 cinema tickets cost £42. How much does one ticket cost? £ ____

b) A cake is cut into 8 equal slices of 75 g. What does the cake weigh? ____ g

SOLVE 1-STEP EQUATIONS (×/÷)

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

4x means 4 × x. $\frac{x}{3}$ **means x ÷ 3.**

$4x = 28$ so $x = 28 \div 4 = 7$

$\frac{x}{3} = 5$ so $x = 5 \times 3 = 15$

1 Use each bar model to solve the equation.

a)

48			
y	y	y	y

$4y = 48$

$y =$ ☐

b)

m		
11	11	11

$\frac{m}{3} = 11$

$m =$ ☐

2 Solve each equation.

a) $3a = 21$ $a =$ ☐

b) $6b = 54$ $b =$ ☐

c) $\frac{c}{4} = 7$ $c =$ ☐

d) $\frac{d}{5} = 10$ $d =$ ☐

3 Write an equation for each function machine. Then solve it.

a) x → × 9 → 63 Equation: ..... x = ☐

b) y → ÷ 6 → 4 Equation: ..... y = ☐

4 Draw lines to match each equation to its solution.

2x = 18	x = 2
x ÷ 2 = 18	x = 9
18x = 36	x = 18
x ÷ 3 = 6	x = 36

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CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Use the inverse: divide to undo ×, multiply to undo ÷. The unknown can be on either side, and solutions do not have to be whole numbers: 4q = 30 gives q = 7.5. Check by substituting.

FLUENCY

1 Solve each equation.

a) $7m = 91$ m = ☐

b) $84 = 12n$ n = ☐

c) $\frac{p}{6} = 9$ p = ☐

d) $4q = 30$ q = ☐

e) $2.5 = \frac{r}{8}$ r = ☐

f) $10s = 3$ s = ☐

2 Four friends share a restaurant bill equally. Each pays £12.75.

a) Write an equation for the total bill, £b. .....

b) Solve your equation. b = ☐

REASONING

3 Spot the mistakes.

Ella solves $\frac{x}{5} = 20$ and writes $x = 4$.

a) Explain Ella's mistake and find the correct solution.

.....

b) Ella says, "6y = 15 cannot be solved, because 15 is not in the 6 times table."
Is she correct? Explain. .....

4 Solve both equations.

a) $3y = 12$ y = ☐

b) $12y = 3$ y = ☐

What is the same and what is different about these two equations?

.....

SOLVE 1-STEP EQUATIONS (×/÷)

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) If a is a whole number greater than 1, the solution of $ax = 60$ is less than 60. ALWAYS SOMETIMES NEVER

b) The solution of $5x = k$ is a whole number. ALWAYS SOMETIMES NEVER

c) $x \div 3 = 6$ and $3 \div x = 6$ have the same solution. ALWAYS SOMETIMES NEVER

.....

PROBLEM SOLVING

2 Form and solve an equation for each problem.

a) A rectangle has an area of 63 cm² and a width of 4.5 cm. Find its length. ☐

b) A regular hexagon has a perimeter of 40.2 cm. Find the length of one side. ☐

3 Solve each equation.

a) $\frac{12}{x} = 4$ $x =$ ☐ **b)** $\frac{30}{y} = 6$ $y =$ ☐ **c)** $\frac{9}{k} = 2$ $k =$ ☐

★ CHALLENGE FOR ALL

4 Find the value of each letter.

$4a = 26$ $\frac{b}{a} = 2$ $0.5c = b$ $d = c \div 13$

$a =$ ☐ $b =$ ☐ $c =$ ☐ $d =$ ☐

What do you notice about the values of c and a? .....

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ANSWERS

BUILDING BLOCKS

1 a) 7 · b) 9 · c) 18 · d) 5
2 a) 7 · b) 18 · c) 13
3 a) 9 in each part · b) 36
4 a) £7 · b) 600 g

SUPPORT

1 a) y = 12 · b) m = 33
2 a) a = 7 · b) b = 9 · c) c = 28 · d) d = 50
3 a) 9x = 63, x = 7 · b) y ÷ 6 = 4 (y/6 = 4), y = 24
4 2x = 18 → x = 9 · x ÷ 2 = 18 → x = 36 · 18x = 36 → x = 2 · x ÷ 3 = 6 → x = 18

CORE

1 a) m = 13 · b) n = 7 · c) p = 54 · d) q = 7.5 · e) r = 20 · f) s = 0.3
2 a) b ÷ 4 = 12.75 (b/4 = 12.75) · b) b = £51
3 a) x/5 means x ÷ 5, so multiply: x = 20 × 5 = 100 · b) no: y = 15 ÷ 6 = 2.5 — solutions do not have to be whole numbers
4 y = 4 and y = 0.25 · same: both use multiplication and the numbers 3 and 12; different: the coefficient and the right-hand side are swapped, so one solution is 12 ÷ 3 and the other is 3 ÷ 12

GREATER DEPTH

1 a) always (x = 60 ÷ a) · b) sometimes (k = 10 gives 2; k = 12 gives 2.4) · c) never (x = 18 and x = 0.5)
2 a) 4.5l = 63, l = 14 cm · b) 6s = 40.2, s = 6.7 cm
3 a) x = 3 · b) y = 5 · c) k = 4.5
4 a = 6.5 · b = 13 · c = 26 · d = 2 · c = 4a (or c is four times a)