Real World Scenarios

Word Exercises 1

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| 1 | One number is 3 times as large as another. Their sum is 28. Find the numbers. |
| 2 | One number is 3 less than another. Their sum is 21. Find the numbers. |
| 3 | One number is 5 more than another. Twice the larger is 12 less than 3 times the smaller. Find the numbers. |
| 4 | One number is 4 more than another. Four times the smaller is equal to 3 times the larger increased by 1. Find the numbers. |
| 5 | One number is 7 less than another. Seven times the smaller is equal to 5 times the larger decreased by 15. Find the numbers. 35 |
| 6 | One number is 4 times as large as another. If the numbers are added together, the result is 6 less than 7 times the smaller. Find the numbers. |
| 7 | The sum of two numbers is 26. Twice the larger is 2 more than 8 times the smaller. Find the numbers. |
| 8 | The sum of two numbers is 18. The larger is 2 less than 4 times the smaller. Find the numbers. |
| 9 | The sum of two numbers is 13. Five times the smaller is 7 less than 4 times the larger. Find the numbers. |
| 10 | The sum of two numbers is 9. If 9 times the larger is subtracted from 12 times the smaller, the result is 3. Find the numbers. |

Word Exercises 2

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| 1 | Mary is 3 times as old as her son. In 12 years, Mary’s age will be 1 year less than twice her son’s age. How old is each now? |
| 2 | One number is 7 more than another. Twice the larger is equal to 4 times the smaller decreased by 2. Find both numbers. |
| 3 | The sum of two numbers is 15. When the larger is subtracted from 3 times the smaller the result is 1. Find the two numbers. |

Mathematical Modelling

Word Exercises 1 - **Solutions**

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| 1 | One number is 3 times as large as another. Their sum is 28. Find the numbers.First number = $x$, second number =$ 3x$ $$3x+x=28$$$$4x=28$$$$x=7$$First number = $7$, second number =$ 21$  |
| 2 | One number is 3 less than another. Their sum is 21. Find the numbers.First number = $x$, second number =$ x-3$ $$x+x-3=21$$$$2x-3=21$$$$2x=24$$$$x=12$$First number = $12$, second number =$ 9$  |
| 3 | One number is 5 more than another. Twice the larger is 12 less than 3 times the smaller. Find the numbers.First number = $x$, second number =$ x+5$ $$2\left(x+5\right)=3x-12$$$$2x+10=3x-12$$$$10+12=3x-2x$$$$22=x$$First number = $22$, second number = 27 |
| 4 | One number is 4 more than another. Four times the smaller is equal to 3 times the larger increased by 1. Find the numbers.First number = $x$, second number =$ x+4$ $$4x=3\left(x+4+1\right)$$$$4x=3x+15$$$$x=15$$First number = $15$, second number = 19 |
| 5 | One number is 7 less than another. Seven times the smaller is equal to 5 times the larger decreased by 15. Find the numbers. 35First number = $x$, second number =$ x-7$ $$7(x-7)=5(x-15)$$$$7x-49=5x-75$$$$2x=-26$$$$x=-13$$First number = $-13$, second number = $-20$ |
| 6 | One number is 4 times as large as another. If the numbers are added together, the result is 6 less than 7 times the smaller. Find the numbers.First number = $x$, second number =$ 4x$ $$x+4x=7x-6$$$$5x+6=7x$$$$6=2x$$$$3=x$$First number = $3$, second number = $12$ |
| 7 | The sum of two numbers is 26. Twice the larger is 2 more than 8 times the smaller. Find the numbers.First number = $x$, second number =$ 26-x$ $$2x=8(26-x)+2$$$$2x=208-8x+2$$$$2x+8x=208+2$$$$10x=210$$$$x=21$$First number = $21$, second number = $5$ |
| 8 | The sum of two numbers is 18. The larger is 2 less than 4 times the smaller. Find the numbers.First number = $x$, second number =$ 18-x$ $$18-x=4\left(x\right)-2$$$$18=4x+x-2$$$$20=5x$$$$4=x$$First number = $4$, second number = $14$ |
| 9 | The sum of two numbers is 13. Five times the smaller is 7 less than 4 times the larger. Find the numbers.First number = $x$, second number =$ 13-x$ $$5x=4\left(13-x\right)-7$$$$5x=52-4x-7$$$$5x+4x=52-7$$$$9x=45$$$$x=5$$First number = $5$, second number = $8$ |
| 10 | The sum of two numbers is 9. If 9 times the larger is subtracted from 12 times the smaller, the result is 3. Find the numbers.First number = $x$, second number =$ 9-x$ $$12(9-x)-9x=3$$$$108-12x-9x=3$$$$105=21x$$$$5=x$$First number = $5$, second number = $4$ |

Word Exercises 2 - Solutions

1

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|  | Age now | Age in 12 year’s |
| Son | $$x$$ | $$x+12$$ |
| Mary | $$3x$$ | $$3x+12$$ |
| Therefore$$3x+12=2\left(x+12\right)-1$$$$3x+12=2x+24-1$$$$3x-2x=24-1-12$$$$x=11$$Son is 11, Mary is 33 years old now |

2

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| --- | --- |
| Numbers | Algebra |
| First  | $$x$$ |
| Second | $$x+7$$ |
| Therefore$$2(x+7)=4\left(x\right)-2$$$$2x+14=4x-2$$$$14+2=4x-2x$$$$16=2x$$$8=x$ or $x=8$ One number is 8 and the other is 15 |

3

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| --- | --- | --- |
|  | Numbers | Age in 12 year’s |
| First | $$x$$ | $$x+12$$ |
| Second | $$15-x$$ | $$3x+12$$ |
| Therefore$$3\left(x\right)-(15-x)=1$$$$3x-15+x=1$$$$3x+x=1+15$$$$4x=16$$$$x=4$$First is 4 and second is 11. |