

9 Algebra Questions

9 problem solving algebra questions



Questions

Name:	Class:
Date:	Score:

1 A chocolate bar costs *c* cents and a drink costs *d* cents. Write down an expression for the cost of 2 chocolate bars and 2 drinks.

а	c + d			
b	2c + d			
С	2c + 2d			
d	2 <i>c</i> – 2 <i>d</i>			Answer
			i	

2 Simplify the expression 4m + 5 + 2m - 1.



Answer

3 In this pyramid, you add two adjacent blocks to find the value of the block above.



What expression will be in the top box?

a 8a-2bb 12a-bc 12a+5bd 10a+b

- Answer
- 4 Brian is a window cleaner. He uses the following formula to calculate the amount to charge his customers:

Charge = \$20 + 4nWhere *n* is the number of windows a house has. If a house has 7 windows, how much would Brian charge?

а	\$24			
b	\$67			
С	\$48			
d	\$27			 Answer

5 The area of a rectangle is 4x - 6.

$$Area = 4x - 6$$

Which of the following pairs could be the length and width of the rectangle?



- **b** 4 and x 6
- **c** 2 and 2*x* 3

d
$$2x$$
 and $2x - 3$

Answer

6 The formula for changing degrees Celsius to degrees Fahrenheit is:

$$F=rac{9C}{5}+32$$

Rearrange this formula to make C the subject.

a
$$C = \frac{5(F-32)}{9}$$

b $C = \frac{5F-32}{9}$
c $C = \frac{5F}{9} - 32$
d $C = 5F - \frac{32}{9}$

Answer

2

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	 	а,
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7 Work out the size of the smallest angle.



8 Jamie's dad is 4 times older than Jamie. In 14 years time, Jamie's dad will be twice the age of Jamie.

What is the sum of Jamie's age now and Jamie's dad's age now?

а	70
b	42
С	22
d	35

Answer

- 9 Which of the following lines passes through the point (2, 5)?
 - a y = 2x 1
 - **b** y = 2x + 1
 - c y = 4x 2
 - d y = 2x + 5

Answer

-	-	-	2	-	-	-	-	-	-	-	-	-	h
													1
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-		-											J,

i

Answers

Question Number	Question	Answer
1	A chocolate bar costs c cents and a drink costs d cents. Write down an expression for the cost of 2 chocolate bars and 2 drinks.	C: $2c + 2d$ 2 chocolate bars would cost 2 lots of c , or $2c$, and 2 drinks would cost 2 lots of d , or $2d$.
2	Simplify the expression $4m + 5 + 2m - 1$.	B: $6m + 4$ We need to collect together like terms here so $4m + 2m = 6m$ and 5 - 1 = 4 (watch out for the negative).
3	In this pyramid, you add two adjacent blocks to find the value of the block above. 7a + b a - 3b 3a What expression will be in the top box?	B: 12a - b $12a - b$ $5a - 2b$ $7a + b$ $a - 3b$ $4a + b$ $3a$
4	Brian is a window cleaner. He uses the following formula to calculate the amount to charge his customers: Charge = $$20 + 4n$ Where n is the number of windows a house has. If a house has 7 windows, how much would Brian charge?	C: \$48 In this question, n is 7 so we can substitute 7 into the formula. Charge = \$20 + 4 x 7 Charge = \$48

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Question Number	Question	Answer
5	The area of a rectangle is $4x - 6$. Area = $4x - 6$ Which of the following pairs could be the length and width of the rectangle?	C: 2 and $2x - 3$ There are two ways of attempting this question. We know that area of a rectangle = length x width so we could multiply each pair together to see which pair makes 4x - 6. Alternatively, if we factorise $4x - 6$ we get $2(2x - 3)$ meaning the sides could be 2 and $2x - 3$.
6	The formula for changing degrees Celsius to degrees Fahrenheit is: $F=rac{9C}{5}+32$ Rearrange this formula to make C the subject.	$A: \frac{5(F-32)}{9} = C$ $F = \frac{9C}{5} + 32 \text{subtract } 32$ $F - 32 = \frac{9C}{5} \text{multiply by } 5$ $5(F-32) = 9C \text{divide by } 9$ $\frac{5(F-32)}{9} = C$
7	Work out the size of the smallest angle. 4x $2x - 10$ $3x - 8$	D: 34° Now we have an equation we can solve 9x - 18 = 180 add $189x = 198$ divide by $9x = 22The angles are:4 \times 22 = 88^{\circ}2 \times 22 - 10 = 34^{\circ}3 \times 22 - 8 = 58^{\circ}The smallest angle is 34^{\circ}$

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Question Number	Question	Answer
8	Jamie's dad is 4 times older than Jamie. In 14 years time, Jamie's dad will be twice the age of Jamie. What is the sum of Jamie's age now and Jamie's dad's age now?	D: 35 To solve this we need to write an equation. Let Jamie's age now be x . Then Jamie's dad's age is $4x$. In 14 years time Jamie's age will be $x + 14$ and Jamie's dad's age will be $4x + 14$. Since we know Janie's dad's age will be $4x + 14$. Since we know Janie's dad's age will be two times Jamie's age, we can write $4x + 14 = 2(x + 14)$ Now we have an equation we can solve 4x + 14 = 2(x + 14) expand the backets $4x + 14 = 2x + 28$ subtract $2x2x + 14 = 28$ subtract $142x = 14$ expand the backets $x = 7Jamie is currently 7 years old, meaning his dad is 28 years old.The sum of their age is 35.$
9	Which of the following lines passes through the point (2, 5)?	B: $y = 2x + 1$ At the point (2, 5), x is 2 and y is 5. We can check which equation works when we substitute in these values: $y = 2x - 1$ $5 = 2 \times 2 - 1$ False $y = 2x + 1$ $5 = 2 \times 2 + 1$ True $y = 4x - 2$ $5 = 4 \times 2 - 1$ False $y = 2x + 5$ $5 = 2 \times 2 + 5$ False

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