Difference of Two Squares - Worksheet

Skill

Group A

Factorise:

1) $x^2 - 25$

2) $x^2 - 36$

3) $x^2 - 49$

4) $y^2 - 64$

5) $y^2 - 81$

6) $81 - y^2$

Group B

Factorise:

1) $100 - x^2$

2) $200 - 2x^2$

3) $300 - 3x^2$

4) $300 - 12x^2$

5) $2y^2 - 50$

6) $y^3 - 25y$

7) $x^3 - 16x$

8) $2x^3 - 32x$

9) $4y^2 - 100$

Group C

Factorise fully:

1) $16x^2 - 25$

2) $16x^2 - 25y^2$

3) $32x^2 - 50y^2$

4) $64x^2 - 100y^2$

5) $64x^3 - 100y^2x$

6) $49x^3 - 81y^2x$

7) $49x^4 - 81y^4$

8) $49x^5 - 81y^4x$

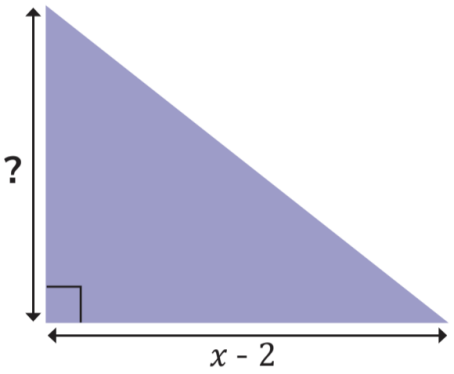
9) $49x^6 - 81y^6$

Difference of Two Squares - Worksheet

Applied

1. Solve $88^2 - 87^2$ without using a calculator.

2. The area of the triangle is equal to $\frac{1}{2}x^2 - 2$.
   Write an expression for the height of the shape.



3. For each question, identify the mistake and write the correct answer.
   a) $x^2 - 64 = (x + 32)(x - 32)$

   b) $y^2 + 16 = (x + 4)(x - 4)$

   c) $p^2 - 49 = (p - 7)(p - 7)$

   d) $x^3 - 100 = (x - 10)(x + 10)$

   e) $3y^2 - 75 = 3(y^2 - 25)$

Difference of Two Squares - Exam Questions

1. Factorise $x^2 - 100$

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(2 marks)

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2. Factorise $y^2 - 49x^2$

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(2 marks)

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3. Factorise $2x^2 - 50$

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(2 marks)

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4. Factorise $4y^2 - 64$

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(2 marks)

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5. Factorise $x^3 - 121x$

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(2 marks)

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6. Evaluate $99^2 - 98^2$

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(2 marks)

Difference of Two Squares - Answers

	Question	Answer
	Skill Questions	
Group A	Factorise: **1)** $x^2 - 25$ **2)** $x^2 - 36$ **3)** $x^2 - 49$ **4)** $y^2 - 64$ **5)** $y^2 - 81$ **6)** $81 - y^2$	 **1)** $(x + 5)(x - 5)$ **2)** $(x + 6)(x - 6)$ **3)** $(x + 7)(x - 7)$ **4)** $(y - 8)(y + 8)$ **5)** $(y + 9)(y - 9)$ **6)** $(9 - y)(9 + y)$
Group B	Factorise: **1)** $100 - x^2$ **2)** $200 - 2x^2$ **3)** $300 - 3x^2$ **4)** $300 - 12x^2$ **5)** $2y^2 - 50$ **6)** $y^3 - 25y$ **7)** $x^3 - 16x$ **8)** $2x^3 - 32x$ **9)** $4y^2 - 100$	 **1)** $(10 + x)(10 - x)$ **2)** $2(10 + x)(10 - x)$ **3)** $3(10 + x)(10 - x)$ **4)** $3(10 - 2x)(10 + 2x)$ **5)** $2(y - 5)(y + 5)$ **6)** $y(y - 5)(y + 5)$ **7)** $x(x + 4)(x - 4)$ **8)** $2x(x + 4)(x - 4)$ **9)** $4(y - 5)(y + 5)$

Difference of Two Squares - Answers

Group C	Factorise f ully: **1)** $16x^2 - 25$ **2)** $16x^2 - 25y^2$ **3)** $32x^2 - 50y^2$ **4)** $64x^2 - 100y^2$ **5)** $64x^3 - 100y^2x$ **6)** $49x^3 - 81y^2x$ **7)** $49x^4 - 81y^4$ **8)** $49x^5 - 81y^4x$ **9)** $49x^6 - 81y^6$	**1)** $(4x + 5)(4x - 5)$ **2)** $(4x + 5y)(4x - 5y)$ **3)** $2(4x + 5y)(4x - 5y)$ **4)** $4(4x + 5y)(4x - 5y)$ **5)** $4x(4x + 5y)(4x - 5y)$ **6)** $x(7x + 9y)(7x - 9y)$ **7)** $(7x^2 + 9y^2)(7x^2 - 9y^2)$ **8)** $x(7x^2 + 9y^2)(7x^2 - 9y^2)$ **9)** $(7x^3 + 9y^3)(7x^2 - 9y^3)$

Difference of Two Squares - Answers

	Question	Answer
	Applied Questions	
1)	Solve $88^2 - 87^2$ without using a calculator.	$88^2 - 87^2$ $= (88 + 87)(88 - 87) = (175)(1) = 175$
2)	The area of the triangle is equal to $\frac{1}{2}x^2 - 2$. Write an expression for the height of the shape.	$x + 2$
3)	For each question, identify the mistake and write the correct answer	
	a) $x^2 - 64 = (x + 32)(x - 32)$	**a)** 64 has been divided by 2 rather than finding the square root. Correct answer: $(x + 8)(x - 8)$
	b) $y^2 + 16 = (x + 4)(x - 4)$	**b)** $y^2 + 16$ is not the difference of two squares. It is not in the form of $a^2 - b^2$. This expression cannot be factorised.
	c) $p^2 - 49 = (p - 7)(p - 7)$	**c)** There must be a + in one bracket and a - in the other. Correct answer: $(p - 7)(p + 7)$
	d) $x^3 - 100 = (x - 10)(x + 10)$	**d)** $x^3 - 100$ is not the difference of two squares. It is not in the form of $a^2 - b^2$. This expression cannot be factorised.
	e) $3y^2 - 75 = 3(y^2 - 25)$	**e)** The answer is not finished, we need to use the difference of two squares method to fully factorise the expression. $3y^2 - 75$ $= 3(y^2 - 25)$ $= 3(y + 5)(y - 5)$

Difference of Two Squares - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	Factorise $x^2 - 100$	$(x \pm 10)(x \pm 10)$ $(x + 10)(x - 10)$	**(1)** **(1)**
2)	Factorise $y^2 - 49x^2$	$(y \pm 7x)(y \pm 7x)$ $(y + 7x)(y - 7x)$	**(1)** **(1)**
3)	Factorise $2x^2 - 50$	$2(x^2 - 25)$ $= 2(x + 5)(x - 5)$	**(1)** **(1)**
4)	Factorise $4y^2 - 64$	$4(y^2 - 16)$ $= 4(y + 4)(y - 4)$	**(1)** **(1)**
5)	Factorise $x^3 - 121x$	$x(x^2 - 121)$ $= x(x + 11)(x - 11)$	**(1)** **(1)**
6)	Evaluate $99^2 - 98^2$	$(99 + 98)(99 - 98)$ $= 197 \times 1 = 197$	**(1)** **(1)**