



Aberdare Community School
Mathematics Department

WJEC GCSE

Higher – Non Calculator
Number

Product of prime factors

Name:

Set:

Date:

Teacher:

9. (a) Express 360 as a product of prime numbers in index form.

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[3]

- (b) Explain why $2^5 \times 3^4$ is **not** a perfect square.

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8. (a) Express 480 as a product of prime numbers in index form.

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- (b) Explain why $3^6 \times 5^4$ is a perfect square.

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9. Express 500 as a product of prime numbers in index form.

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5. (a) Express 792 as a product of prime numbers in index form.

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- (b) Write down the least positive whole number that 792 must be multiplied by to make the result a perfect square.

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- (c) Explain why $2^5 \times 3^6 \times 13^2$ is not a perfect square.

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9. (a) Express 1323 as a product of prime numbers in index form.

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- (b) Write down the least whole number by which 1323 should be multiplied to make the result a perfect square.

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5.

(e) Express 225 as a product of prime factors using index notation.

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(b) Express 126 as a product of prime numbers using index notation.

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8. (a) Express 360 as a product of prime numbers in index form.

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- (b) Explain why $2^5 \times 3^4$ is **not** a perfect square.

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9. (a) Express 756 as a product of prime numbers in index form.

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7. (a) Express 1764 as a product of prime factors using index notation.

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10. (a) (i) Express 324 as a product of prime numbers in index form.

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(ii) Is 648 a square number? You must explain your answer.

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4. (a) Find the highest common factor of 30 and 45.

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- (b) Find the lowest common multiple of 18 and 24.

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- (d) Express 525 as a product of prime numbers using index notation.

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(d) (i) Express 360 as a product of prime factors using index notation.

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(ii) What is the least number that you must multiply 360 by to make a perfect square?

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[4]

7. (a) Explain how you know that 24 is **not** a square number.

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- (b) Express 112 as a product of prime numbers in index form.

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(c) Express 112 as a product of prime numbers in index form.

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(d) Explain how you know that 32 is **not** a square number.

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(b) (i) Express 10^6 as a product of prime factors in index form.

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(ii) Explain how you know that one million is a square number.

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6. (a) Find the highest common factor of 30 and 75.

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- (b) Find the lowest common multiple of 6 and 21.

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1. (a) Find the highest common factor of 48 and 64.

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(b) Find the lowest common multiple of 36 and 90.

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(c) Write down all the prime numbers between 70 and 80.

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(b) (i) Write 1200 as a product of prime factors using index notation.

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(ii) Write down the smallest possible number by which 1200 has to be multiplied to create a perfect square.

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3. (a) Write 3600 as a product of prime factors using index notation.

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4363
02/00/05

8. (a) Find the highest common factor of 90 and 105.

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(b) Find the lowest common multiple of 90 and 105.

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(c) Express 936 as a product of prime numbers in index form.

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9. Jack makes the following statements.

- 36 and 60 are both common factors of 180.
- The highest common factor of 36 and 60 is **not** a factor of 180.

Decide whether each of Jack's statements is correct.

You must show your working and give a reason for your answer.

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4. (a) (i) Express 3969 as a product of prime numbers in index form.

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(ii) Explain how you know that 3969 is a perfect square.

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4352
02/00/07



5. (a) Express 396 as a product of prime numbers in index form.

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(b) Write down the smallest positive integer which should be **divided** into 396 to produce a perfect square.

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4352
02/00/07

8. (a) Find the highest common factor of 36 and 54.

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9. (a) Write down the smallest possible number by which 24 has to be multiplied to create a perfect square. [2]

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5. Express 126 as a product of prime numbers in index form.

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(b) Express the highest common factor of 24 and 40 as a product of prime numbers in index form. [3]

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4370
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