

6.4 Answers

6.4.1 Solutions to 6.3 Exercise

Answer 1

- (i) $8 = 2 \times 2 \times 2$ ($= 2^3$)
(ii) $10 = 2 \times 5$
(iii) $18 = 2 \times 3 \times 3$ ($= 2 \times 3^2$)
(iv) $50 = 2 \times 5 \times 5$ ($= 2 \times 5^2$)
(v) $99 = 3 \times 3 \times 11$ ($= 3^2 \times 11$)
(vi) $70 = 2 \times 5 \times 7$

[12 marks]

Answer 2

23 is already a prime number

Only composite numbers can be written as products of primes

[2 marks]

Answer 3

As $4 + 4 + 1 = 9$ which is divisible by 3, it follows that 441 is divisible by 3

In fact, {Factors of 441} = {1, 3, 7, 9, 21, 49, 63, 147, 441} so any of those (other than 1 or 441) are suitable answers.

[3 marks]

Answer 4

No

As 2557884 is an even number it divides by 2.

(If it were prime it would only divide by itself and 1)

[2 marks]

Answer 5

No

As 41087335 has a last digit of 5 it divides by 5.

(If it were prime it would only divide by itself and 1)

[2 marks]

Answer 6

It's fairly straightforward to spot that 847 divides by 7.

In fact, {Factors 847} = {1, 7, 11, 77, 121, 847} so other answers are possible.

[3 marks]

Answer 7

Yes, the number 2 is both even and prime. (It's the only even prime number)

[3 marks]

Answer 8 Math-Art question.

[13 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from mhh@shrewsbury.org.uk