

Name: _____

Exam Style Questions

Rational and Irrational Numbers



Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 230



Answers and Video Solutions



1. Circle the rational numbers



π

$\sqrt{9}$

$0.1111\dots$

4

$\sqrt{2}$

$\frac{1}{3}$

(2)

2. Katie says



$0.6666\dots$ is irrational because it is a recurring decimal

Is Katie correct?

Explain your answer.

.....

.....

(1)

3. Write down a rational number.



.....

(1)

4. Write down an irrational number.



.....

(1)

5. x is an irrational number between 7 and 10.
Find a value for x .



.....
(1)

6. y is an irrational number between 3 and 4.
Find a value for y .



.....
(1)

7. \sqrt{z} is a rational number between $\sqrt{105}$ and $\sqrt{135}$



Find a value for z .

.....
(1)

8. Which of these equations has rational solutions?



Equation 1

$$\frac{2}{3}x^2 = 26$$

Equation 2

$$\frac{5}{6}x^2 = 120$$

Equation 3

$$\frac{2}{7}x^2 = 100$$

Explain your answer.

(2)

9. The radius of a circle is $\frac{10}{\pi}$ cm



Is the circumference of the circle rational or irrational?

Explain your answer.

.....

.....

(3)

10.



$$5x^2 = k$$

The equation above can have rational or irrational solutions.

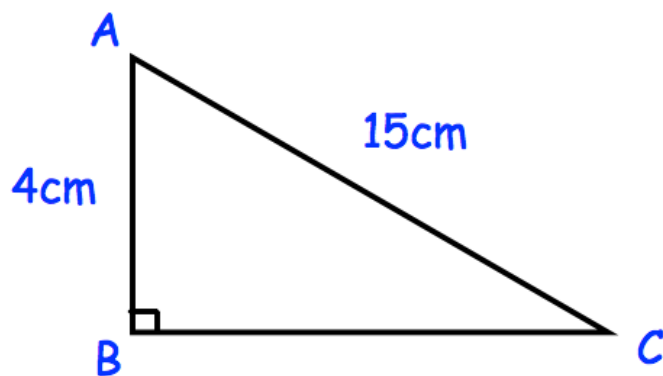
(a) Write down a value for k which gives rational solutions.

.....
(1)

(b) Write down a value for k which gives irrational solutions.

.....
(1)

11. Shown below is right angled triangle ABC.



Is length of BC rational or irrational?
Show your working.

.....
(3)

12. Show $(5 - \sqrt{2})(5 + \sqrt{2})$ is rational



(3)

-
13. Circle the rational numbers.



$$\sqrt[3]{8}$$

$$\frac{\sqrt{8}}{\sqrt{2}}$$

$$\frac{\pi}{2}$$

$$\frac{\sqrt{15}}{\sqrt{3}}$$

(2)

14. Show $\frac{7\sqrt{12}}{2\sqrt{3}}$ is rational



(3)

-
15. Find two different surds are multiplied together and give a rational number.



.....
(2)