

MATTHAYOM 2 BASIC MATHEMATICS

MIDTERM EXAM TERM 1 /Academic Year 2025

Re test

Part 1: Multiple – Choice (40 items)

MA 2.2 G. 8/5 Understand and apply Pythagoras' theorem and Converse of Pythagoras Theorem to solve mathematical and real-world problems.

1. Which of the following statements about Pythagoras' Theorem is *incorrect*?
 - a. Pythagoras Theorem can be used to calculate the missing side lengths of any triangle.
 - b. A theorem that is only applicable in finding the missing side lengths of a right triangle.
 - c. The sum of the squares of the two legs of a right triangle is equal to the square of its longest side.
 - d. If the sum of the squares of the two shorter side lengths of a triangle is equal to the square of the longest side, then the triangle is a right triangle.

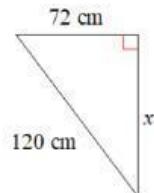
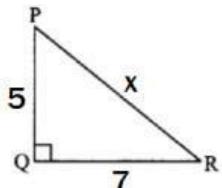
2. Which of the following completes the Pythagoras' Theorem statement: "*the square of the length of the hypotenuse is equal to the _____ of the squares of the lengths of its _____?*"
 a. square, leg b. sum, legs c. squares, two legs d. sum, two legs

3. Given a, b and c are side lengths of a triangle. If $c^2 > a^2 + b^2$, then the triangle is a/an _____.
 - a. right triangle
 - b. obtuse triangle
 - c. scalene triangle
 - d. acute triangle

4. Which of the following measurements is a Pythagorean triple?
 - a. 6, 8 , 15
 - b. 7, 24, 28
 - c. 30, 40, 50
 - d. 10, 12, 15

5. Which of the following is the correct statement in finding the length of the 3rd side?
 - a. $x^2 = 7^2 + 5^2$
 - b. $x^2 = 5^2 - 7^2$
 - c. $x^2 = 7^2 - 5^2$
 - d. $x = 7 + 5$

6. Solve for the missing side length of the right triangle on the right.
 - a. 63.5cm
 - b. 96cm
 - c. 154cm
 - d. 140cm



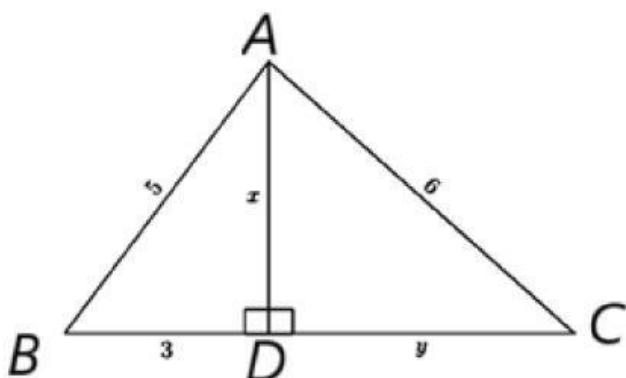
For item 7 – 9, refer to the figure on the right 

Given : $AB = 5$ units, $AC = 6$ units, $BD = 3$ units

$AD = x$ units, $CD = y$ units

7. What is the value of x ?

- a. 16 units
- b. 4 units
- c. 8 units
- d. 2 units



8. What is the value of y ?

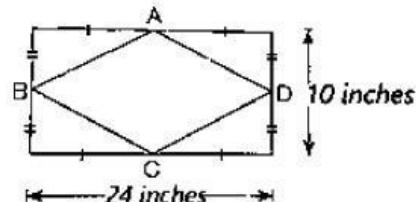
- a. 10 units
- b. 8 units
- c. 20 units
- d. $2\sqrt{5}$ units

9. What is the area of $\triangle ABC$?

- a. $12 + 8\sqrt{5}$ square units
- b. $4 + 2\sqrt{5}$ square units
- c. 8 square units
- d. $6 + 4\sqrt{5}$ square units

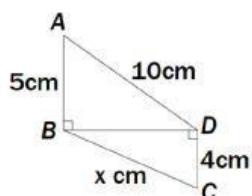
10. Given the figure on the right, what is the perimeter of square ABCD?

- a. 26 inches
- b. $4\sqrt{61}$ inches
- c. 18 inches
- d. 52 inches



11. What is the length of side BC?

- a. $\sqrt{41}$ cm
- b. $\sqrt{91}$ cm
- c. $\sqrt{141}$ cm
- d. $\sqrt{109}$ cm

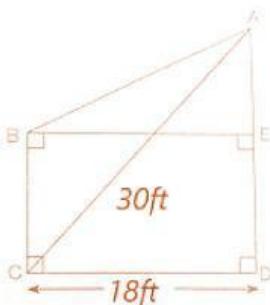


12. Given the figure on the right (not *drawn to scale*)

The area of rectangle BCDE is 162ft^2 , and AC is 30ft ,

How long is side AB?

- a. $3\sqrt{61}\text{ft}$
- b. $3\sqrt{11}\text{ ft}$
- c. $9\sqrt{3}$ ft
- d. $9\sqrt{5}$ ft



Standard MA1.4: Understanding of numerical system and application of numerical properties.

13. Which of the following statements is/ are true?

- i. Whole numbers are rational numbers.
- ii. Real numbers are classified into rational numbers and irrational numbers.
- iii. Integers are also natural numbers.
- iv. Surds are rational numbers.

a. statement i only b. statements i and ii only

c. statements i,ii, and iii d. statement ii only

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14. Which decimal is terminating?

a. 0.333... b. 1.25 c. 1.414213... d. 0.666...

15. What is the best definition of a rational number?

a. A number that cannot be expressed as a fraction.

b. A number with non-repeating decimals.

c. A number that can be written as a ratio of two integers.

d. A number that is always a whole number.

16. Which of the following is an irrational number?

a. $\frac{\sqrt{2}}{\sqrt{8}}$ b. 0.32̄ c. $\frac{6\pi}{\pi}$ d. $\frac{\sqrt[3]{8}}{\sqrt{2}}$

17. Which of the following numbers is not a real number?

a. -4 b. $\sqrt{5}$ c. $\sqrt[3]{-8}$ d. $\sqrt{-1}$

Standard MA1.1/1: Write fractions in the form of decimals and write recurring decimals in the form of

18. What is the equivalent of $\frac{4}{33}$ in decimal form?

a. 0.333... b. 0.1̄2 c. 0.121212 d. 0.434343...

19. What is the simplest fraction form of 0.66666...?

a. $\frac{2}{3}$ b. $\frac{2}{9}$ c. $\frac{6}{90}$ d. $\frac{1}{15}$

20. What is the simplest fraction form of 0.61̄5?

a. $\frac{203}{300}$ b. $\frac{205}{333}$ c. $\frac{203}{330}$ d. $\frac{277}{495}$

Standard MA1.3/1: Find estimates of square root of real numbers.

21. Which of the following is the estimated value of $\sqrt{99}$?
a. 9.9 b. 9.98 c. 9.95 d. 9.93

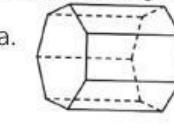
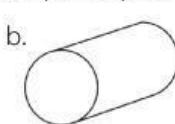
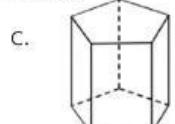
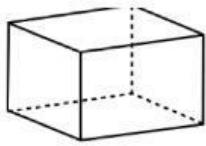
22. Which one is equal to $\sqrt{768x^2y^5z^3}$ in simplest radical form?
a. $16xy^2z\sqrt{2yz}$ b. $16xy^2z^2\sqrt{3yz}$ c. $4xy^2z^2\sqrt{3yz}$ d. $4xy^2z\sqrt{2yz}$

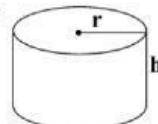
23. Perform the indicated operation and simplify : $2\sqrt{45} - 3\sqrt{180} + \sqrt{80}$
a. $20\sqrt{5}$ b. $-8\sqrt{5}$ c. $-20\sqrt{5}$ d. $8\sqrt{3}$

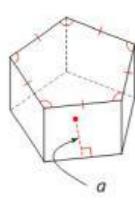
24. Which one is equal to the product of these two factors : $(4 - \sqrt{3m})(4 + \sqrt{3m})$?
a. $-16 - 3m$ b. $3m - 16$ c. $16 + 3m$ d. $16 - 3m$

25. Perform the operation and simplify: $\sqrt{2}(\sqrt{8} - \sqrt{72})$
a. 8 b. -8 c. $2\sqrt{2}$ d. $-8\sqrt{2}$

Standard MA2.1: Understanding the basics of measurement, ability to measure the surface area and

26. The following shapes are all example of prisms, EXCEPT one.
a.  b.  c.  d. 

27. In the figure below, what is variable r stands for?
a. ray b. ratio c. rad d. radius


28. In the figure on the right, what is variable a stands for?
a. arm b. arc c. apothem d. angle


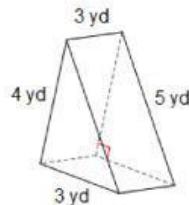
29. Which of the following is described in a formula: $6 \times s \times s$?
a. Area of a square b. Surface area of a cuboid
c. Surface area of a cube d. Volume of a cube

30. One side of a cube is 5ft long, how much is its volume in cubic feet?
a. 150 ft^3 b. 225 ft^3 c. 125 ft^3 d. 250 ft^3

For items 31 – 32, refer to the prism on the right

31. What is the surface area of the right triangular prism?

- a. 45yd^2
- b. 48yd^2
- c. 59yd^2
- d. 56yd^2



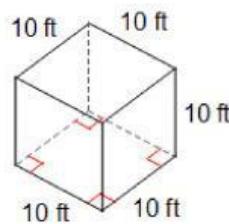
32. What is the volume of the right triangular prism above?

- a. 36yd^3
- b. 72yd^3
- c. 18yd^3
- d. 24yd^3

For items 33 – 34, refer to the figure on the right

33. What is the volume of the cube on the right?

- a. 6000ft^3
- b. 600ft^3
- c. 1000ft^3
- d. 100ft^3



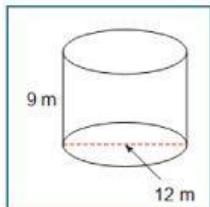
34. What is the surface area of the cube?

- a. 60ft^2
- b. 600ft^2
- c. 6000ft^2
- d. 300ft^2

For items 35 – 37, refer to the figure on the right.

35. What is the radius of the cylinder?

- a. 12m
- b. 6m
- c. 4m
- d. 4.5m



36. What is the approximate surface area of the cylinder? (Use $\pi = 3.14$ or $\frac{22}{7}$)

- a. 582m^2
- b. 565.2 m^2
- c. 243m^2
- d. 942m^2

37. What is the approximate volume of the cylinder?

- a. 1017m^3
- b. $24,416\text{m}^3$
- c. $12,208\text{m}^3$
- d. 4069m^3

For items 38 – 40.

Given : A glass fish tank is 18inches wide, 20 inches long and 15 inches high.

38. What is the surface area of the fish tank?

a. 1860in^2 b. 1230 in^2 c. 930in^2 d. 1290in^2

39. What is the volume of the fish tank?

a. 2700in^3 b. 1800in^3 c. 5400in^3 d. 10800in^3

40. If water is filled to $\frac{3}{4}$ of the tank, what is the volume of water in the fish tank?

a. 7200in^3 b. 4050in^3 c. 15120in^3 d. 3780in^3

