EL-MOASSER



Maths

April Tests

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SECOND TERM

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April Tests

Test 1

First group **Choose the correct answer from the given ones :**

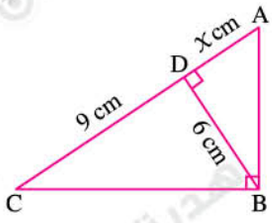
(1) If A(– 4 , 0) , B (0 , 3) , then the length of $\overline{AB}$ = ... length units.

a. 2 b. 3

c. 4 d. 5

(2) **In the given figure :**

χ = ...



a. 4 b. 5

c. 6 d. 7

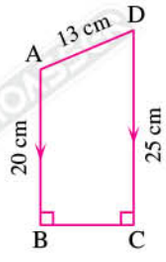
Second group **Answer the following questions :**

(1) If the slope of the straight line passing through the two points (k , 9) , (3 , 2) equals 7, then find the value of k.

(2) **In the given figure :**

ABCD is a right trapezium.

Find the length of the projection of $\overline{AD}$ on $\overleftrightarrow{BC}$



(3) The length of the base diameter of a right circular cylinder is 10 cm and its height is 8 cm , find its surface area. ($\pi \approx 3.14$)

(4) The circumference of a circle is 12 π cm.

Find its area to the nearest integer. ($\pi \approx 3.14$)

Test 2

First group **Choose the correct answer from the given ones :**

(1) If A (– 1 , 2) , B (– 6 , 5) , then the slope of $\overleftrightarrow{AB}$ equals .....

a. $\frac{5}{3}$ b. $\frac{-5}{3}$ c. $\frac{-3}{5}$ d. $\frac{3}{5}$

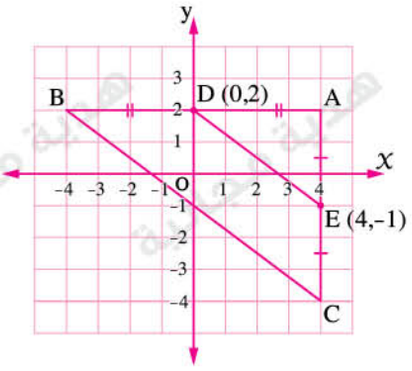
(2) In Δ XYZ , if m (∠ X) = 110° , m (∠Y) = 40° , then XY ..... XZ

a. > b. < c. = d. ≥

Second group **Answer the following questions :**

(1) **In the given figure :**

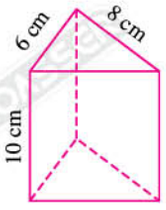
Find the length of $\overline{BC}$



(2) **In the given figure :**

The height of a right triangular prism is 10 cm , its base is a right-angled triangle , the lengths of the sides of the right angle are 6 cm , 8 cm.

Find the lateral area of the prism.

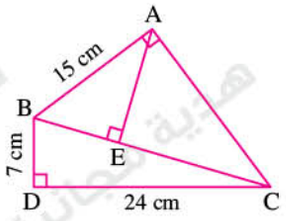


(3) **In the given figure :**

Δ ABC is a right-angled triangle at A ,

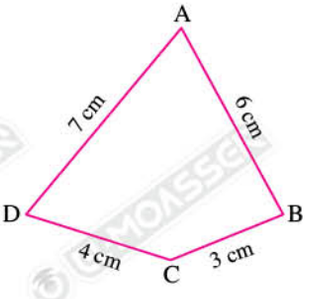
Δ BDC is a right-angled triangle at D , $\overline{AE} \perp \overline{BC}$

Find the length of each $\overline{AC}$ and $\overline{AE}$



(4) **In the given figure :**

Prove that : m (∠ ABC) > m (∠ ADC)



Test 3

First group **Choose the correct answer from the given ones :**

(1) The distance between the point (12 , 5) and the origin point equals ..... length units.

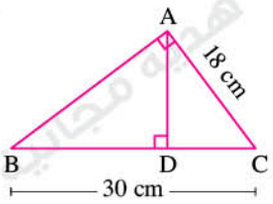
a. 5 b. 7 c. 12 d. 13

(2) In Δ ABC , if AB = 3 cm , BC = 4 cm , AC = x cm , then $x \in$ .....

a. [3 , 4] b.]3 , 4[c.]1 , 7[d. [1 , 7]

Second group **Answer the following questions:**

(1) **In the given figure :**



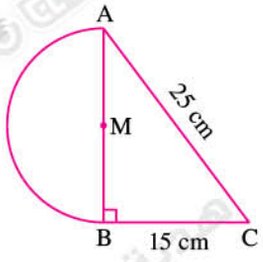
Δ ABC is a right-angled triangle at A ,

$\overline{AD} \perp \overline{BC}$, AC = 18 cm , BC = 30 cm

Find the length of each of $\overline{AB}$ and $\overline{DC}$

(2) Prove that the points A (– 3 , – 1) , B (– 1 , 1) and C (1 , 3) lie on the same straight line.

(3) Find the perimeter of the given figure given that ($\pi \approx 3.14$)

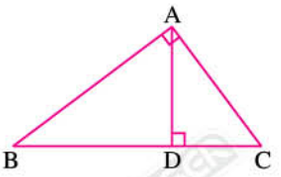


(4) If the distance between the two points A (x , 0) , B (3 , 2) equals $2\sqrt{5}$ length units , then find the set of possible values of x

Test 4

First group **Choose the correct answer from the given ones:**

(1) In the given figure :



The projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is .....

a. $\overline{CD}$ b. $\overline{DB}$

c. $\overline{BC}$ d. {D}

(2) If the area of a circle is 64 π square inches , then the length of its diameter equals ..... inches.

a. 64 b. 32

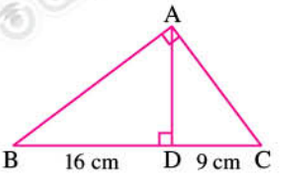
c. 16 d. 8

Second group **Answer the following questions :**

(1) Which is greater in volume ?

A right circular cylinder whose base diameter length is 14 cm and its height is 10 cm or a quadrilateral right prism whose base is a rectangle of dimensions 9 cm , 11 cm and its height 14 cm $(\pi \approx \frac{22}{7})$

(2) In the given figure :



Δ ABC is a right-angled triangle at A , $\overline{AD} \perp \overline{BC}$

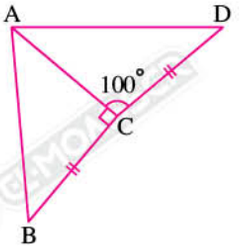
Find :

(a) The length of $\overline{AD}$

(b) The area of Δ ABC

(3) Prove that the points A(3 , 0) , B (0 , 4) and C (3 , 4) are vertices of a right-angled triangle.

(4) Compare between the length of $\overline{AD}$ and the length of $\overline{AB}$



Test 5

First group **Choose the correct answer from the given ones :**

(1) The height of a pentagonal right prism is 7 cm and its volume is 140 cm^3, then its base area = ... cm^2

a. 10 b. 20

c. 133 d. 980

(2) If the straight line passes through the two points (8 , k) , (– 6 , 1) is parallel to the X-axis , then what is the value of k ?

a. 8 b. 1

c. – 1 d. – 8

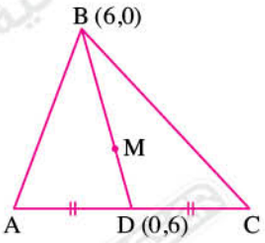
Second group **Answer the following questions :**

(1) **In the given figure :**

$\overline{BD}$ is a median in Δ ABC ,

M is the intersection point of medians.

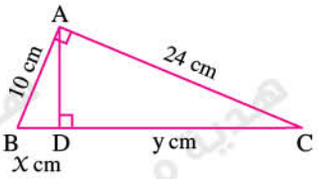
Find the length of $\overline{BM}$



(2) Find the circumference of the circle whose center is M (2 , 4) and passes through the point A (9 , 4) $\left(\pi \approx \frac{22}{7}\right)$

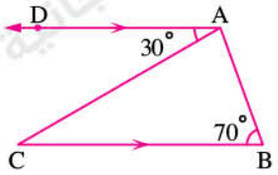
(3) **In the given figure :**

Find : $y - X$



(4) **In the given figure :**

Prove that : BC > AC



Answers of April Tests

Test 1

First group

1. (d) **2.** (a)

Second group

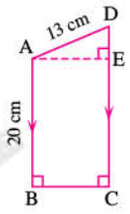
1. $\because m = \frac{y_2 - y_1}{x_2 - x_1}$ $\therefore \frac{9-2}{k-3} = 7$

$\therefore 7(k-3) = 7$ $\therefore k - 3 = 1$

$\therefore k = 4$

---

2. The projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is $\overline{DC}$



Draw $\overline{AE} \perp \overline{DC}$

$\therefore$ ABCE is a rectangle

$\therefore EC = 20$ cm

$\therefore DE = 25 - 20 = 5$ cm

$\because$ AED is a right-angled triangle at E

$\therefore AE = \sqrt{(13)^2 - (5)^2} = 12$ cm

$\therefore BC = 12$ cm

$\therefore$ The length of the projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ equals 12 cm

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3. $r = 10 \div 2 = 5$ cm

$L.A = 2\pi r h = 2 \times 3.14 \times 5 \times 8 = 251.2$ cm^2

$\therefore S.A = L.A + 2\pi r^2$

$= 251.2 + 2 \times 3.14 \times 5^2 = 408.2$ cm^2

---

4. $\because C = 2\pi r = 12\pi$ $\therefore r = 6$ cm

$\therefore A = \pi r^2 = 3.14 \times 6^2 = 113$ cm^2

$\therefore$ The area equals 113 cm^2

(To the nearest integer)

Test 2

First group

1. (c) **2.** (b)

Second group

1. $\because$ D , E are the midpoints of $\overline{AB}$, $\overline{AC}$ respectively

$\therefore BC = 2\,DE$

$\because DE = \sqrt{(0-4)^2 + (2-(-1))^2}$

$= 5$ length units

$\therefore BC = 2 \times 5 = 10$ length units

(There are other solutions)

---

2. $\because$ The base is right triangle.

Assume the length of the hypotenuse = x cm

$\therefore x = \sqrt{6^2 + 8^2} = 10$

$\because$ The lateral area = The base perimeter $\times$ h

$\therefore$ The lateral area = $(6 + 8 + 10) \times 10$

$= 240$ cm^2

---

3. $\because \Delta$ BDC is a right-angled triangle at D

$\therefore BC = \sqrt{(7)^2 + (24)^2} = 25$ cm

$\because \Delta$ ABC is a right angled triangle at A

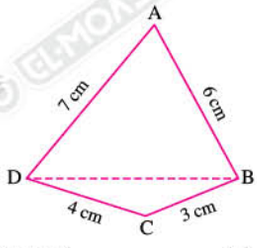
$\therefore AC = \sqrt{25^2 - 15^2} = 20$ cm

$\because \overline{AE} \perp \overline{BC}$

$\therefore AE = \frac{AB \times AC}{BC} = \frac{15 \times 20}{25} = 12$ cm

---

4. Construction :



Draw $\overline{BD}$

Proof :

In Δ ABD :

$\because AD > AB$

$\therefore m(\angle ABD) > m(\angle ADB)$ (1)

In Δ CBD :

$\because CD > CB$

$\therefore m(\angle DBC) > m(\angle BDC)$ (2)

By adding (1) , (2) :

$\therefore m(\angle ABC) > m(\angle ADC)$

Test 3

First group

1. (d) **2.** (c)

Second group

1. ∵ Δ ABC is a right-angled triangle at A

∴ $AB = \sqrt{(30)^2 - (18)^2} = 24$ cm

∵ $\overline{AD} \perp \overline{BC}$

∵ $(AC)^2 = DC \times BC$

∴ $(18)^2 = DC \times 30$

∴ $DC = \frac{(18)^2}{30} = 10.8$ cm

2. ∵ $AB = \sqrt{(-1-(-3))^2 + (1-(-1))^2}$

$= 2\sqrt{2}$ length units

$BC = \sqrt{(1-(-1))^2 + (3-1)^2}$

$= 2\sqrt{2}$ length units

$AC = \sqrt{(1-(-3))^2 + (3-(-1))^2}$

$= 4\sqrt{2}$ length units

∵ AC = AB + BC

∴ A, B and C are on the same straight line.

3. ∵ Δ ABC is a right-angled triangle at B

∴ $AB = \sqrt{(25)^2 - (15)^2} = 20$ cm

$r = 20 \div 2 = 10$ cm

∴ The perimeter of the figure

$= \frac{1}{2}(2\pi r) + 15 + 25$

$= \frac{1}{2}(2 \times 3.14 \times 10) + 15 + 25$

$= 71.4$ cm

4. ∵ $AB = \sqrt{(x-3)^2 + (0-2)^2} = 2\sqrt{5}$

(Square both sides)

∴ $(x-3)^2 + 4 = 20$

∴ $(x-3)^2 = 16$

(Take a square root for both sides)

∴ $x - 3 = 4$ or $x - 3 = -4$

∴ $x = 7$ | $x = -1$

∴ The set of possible values of $x = \{-1, 7\}$

Test 4

First group

1. (d) **2.** (c)

Second group

1. $r = 14 \div 2 = 7$ cm

∴ The volume of the cylinder

$= \pi r^2 h = \frac{22}{7} \times (7)^2 \times 10$

$= 1540$ cm^3

∵ The volume of the prism

= base area × h = 9 × 11 × 14

= 1386 cm^3

∴ The volume of the cylinder is greater than the volume of the prism.

2. ∵ Δ ABC is a right-angled triangle at A, $\overline{AD} \perp \overline{BC}$

∴ $(AD)^2 = DC \times DB = 9 \times 16 = 144$

∴ $AD = \sqrt{144} = 12$ cm

∵ The area of Δ ABC $= \frac{1}{2}$ BC × AD

$= \frac{1}{2} \times 25 \times 12$

$= 150$ cm^2

3. ∵ $AB = \sqrt{(0-3)^2 + (4-0)^2} = 5$ length units

∵ $BC = \sqrt{(3-0)^2 + (4-4)^2} = 3$ length units

∵ $AC = \sqrt{(3-3)^2 + (4-0)^2} = 4$ length units

∴ $(AB)^2 = 25$

, $(BC)^2 + (AC)^2 = 9 + 16 = 25$

∴ $(AB)^2 = (BC)^2 + (AC)^2$

∴ The points A, B, C are vertices of a right-angled triangle.

4. ∵ BC = DC, AC = AC (Common side)

, m(∠ ACD) > m (∠ ACB)

∴ AD > AB

Test 5

First group

1. (b) **2.** (b)

Second group

1. $\because$ BD $= \sqrt{(0-6)^2 + (6-0)^2}$
$= 6\sqrt{2}$ length units

$\because$ $\overline{BD}$ is a median , M is the intersection point of medians

$\therefore$ BM $= \frac{2}{3}$ BD

$\therefore$ BM $= \frac{2}{3} \times 6\sqrt{2} = 4\sqrt{2}$ length units

---

2. $\because$ MA $= r = \sqrt{(9-2)^2 + (4-4)^2}$
$= 7$ length units

$C = 2\pi r = 2 \times \frac{22}{7} \times 7 = 44$ length units

3. $\because$ Δ ABC is a right-angled triangle at A

$\therefore (BC)^2 = (AB)^2 + (AC)^2 = (10)^2 + (24)^2$
$= 676$

$\therefore$ BC $= \sqrt{676} = 26$ cm

$\therefore (AB)^2 = BD \times BC$

$(10)^2 = x \times 26$ $\quad x = \frac{100}{26} = \frac{50}{13} = 3\frac{11}{13}$

$\therefore y = 26 - \frac{50}{13} = 22\frac{2}{13}$

$\therefore y - x = 22\frac{2}{13} - 3\frac{11}{13} = 18\frac{4}{13}$

---

4. $\because$ $\overleftrightarrow{AD}$ // $\overline{BC}$, $\overline{AC}$ is a transversal

$\therefore$ m $(\angle C)$ = m $(\angle DAC) = 30°$
(Alternating interior angles)

In Δ ABC :

$\therefore$ m $(\angle BAC) = 180° - (30° + 70°) = 80°$

$\therefore$ m $(\angle BAC) >$ m $(\angle B)$

$\therefore$ BC > AC