

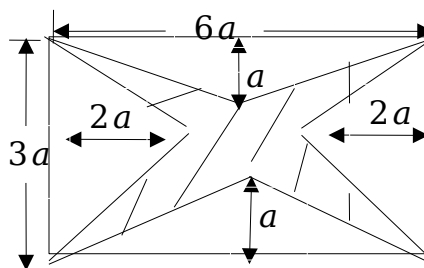
Sunny Side Educational Institute

2012E.C Second Semester Mathematics Worksheet for Grade 8

1. Which of the following statements is always true about the set of numbers denoted by Z and Q
 - A. $Z \cup Z = Z$
 - B. $Z \cap Z = Z$
 - C. $Z \cap Q = Q$
 - D. $Z \cup Q = Q$
2. When $\frac{(-5)(12)-(-4)}{3(-6)+2(-5)}$ is simplified it is equal to :
 - A. 4
 - B. -2
 - C. 2
 - D. 3
3. Which one of the following statements is always true about the rational number Q ?
 - A. $|Q|=Q$
 - B. $|Q|>Q$
 - C. $Q>|Q|$
 - D. $|Q|=0$
4. Which one of the following sets describes the set of even natural numbers using variables?
 - A. $\{2n-2 : n \in N\}$
 - B. $\{2n+2 : n \in N\}$
 - C. $\{2n+4 : n \in N\}$
 - D. $\{2n+3n : n \in N\}$
5. If $\frac{x}{y}$ and $\frac{y}{w}$ are positive rational numbers such that $\frac{x}{y} = \frac{v}{w}$, Then which of the following is True?
 - A. $x - v = y - w$
 - B. $xw = vy$
 - C. $xy = vw$
 - D. $x + v = w + y$
6. when the expression $5(x - 3y) + 4(4y - x) - 2(x - y)$ is simplified it is equal to:
 - A. $x - 3y$
 - B. $-x - 3y$
 - C. $x + 3y$
 - D. $3y - x$
7. If n is the smallest of four consecutive even integers then, what is their sum in terms of n ?
 - A. $4n + 10$
 - B. $8n + 10$
 - C. $4n + 12$
 - D. $12n + 8$
8. A mathematical statement of the expression, "three fourth of a number X is three - tenths"
 - A. $\frac{3}{4}x = \frac{3}{10}$
 - B. $\frac{3}{10}x = \frac{3}{4}$
 - C. $\frac{10}{3}x = \frac{4}{3}$
 - D. $\frac{4}{3}x = \frac{3}{10}$
9. The price of a shirt at a shop is 300 Birr plus 15% **VAT**, What would be the total cost of the shirt?
 - A. 45birr
 - B. 255 Birr
 - C. 345 birr
 - D. 390 birr
10. The measure of the opposite angles of a cyclic quadrilateral are in the ratio 2:3 what is the measure of the largest of these angles?
 - A. 36°
 - B. 72°
 - C. 120°
 - D. 108°
11. Y is inversely proportional to X . if $X = 4$ then $Y = 3$. What is Y when $X = 8$
 - A. 96
 - B. $\frac{2}{3}$
 - C. $\frac{3}{2}$
 - D. 48
12. If the mean of a, b, c, d is k , then what is the mean of $a + \frac{2}{3}, \frac{4}{3}b, c + \frac{b}{3}, d + \frac{b}{3}$?
 - A. $K + b$
 - B. $\frac{3k+b}{3}$
 - C. $3k + b$
 - D. $\frac{k}{3} + 3b$
13. What is the mean of $a^3, 2b^3, c^3, 4d^3$. If $3a^3 + 6b^3 + 3c^3 + 12d^3 = 600$?

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- A geometric diagram showing two triangles sharing a common vertex. The left triangle has angles θ and β . The right triangle has angles α and μ . The angle between the two triangles at the common vertex is 60° .

- A. $12a^2 \text{ squ. units}$
B. $8a^2 \text{ squ. units}$
C. $10a^2 \text{ squ. units}$
D. $6a^2 \text{ squ. units}$



- 2

A. 720

B. $\frac{720}{39}$

C. $\frac{2160}{13}$

D. $\frac{39}{720}$

24. Which one of the following is **NOT** true for a positive X.

A. $\frac{\sqrt[3]{x^9}}{\sqrt{x^2}} = x^2$

C. $\sqrt[3]{16x^6} = 2x^3\sqrt{2x}$

B. $\frac{\sqrt[3]{8x^6}}{\sqrt[3]{x^3}} = 2x$

D. $\sqrt{7\frac{1}{9}} = \frac{8}{3}$

25. The simplified form of the expression $Y^{(-3x+6y)}$ is $x = 2$ and $Y = \frac{1}{2}$ is equal to :

A. $\frac{1}{8}$

B. $\frac{1}{4}$

C. 4

D. 8

26. Abebe is 12 years old and his sister Aster is 2 years old. In how many years will be exactly twice as old as Aster.

A. 8 years

B. 4 years

C. 20 years

D. 10 years

27. If $\sqrt{3x+4} = \sqrt{5}$ then what is the value of x

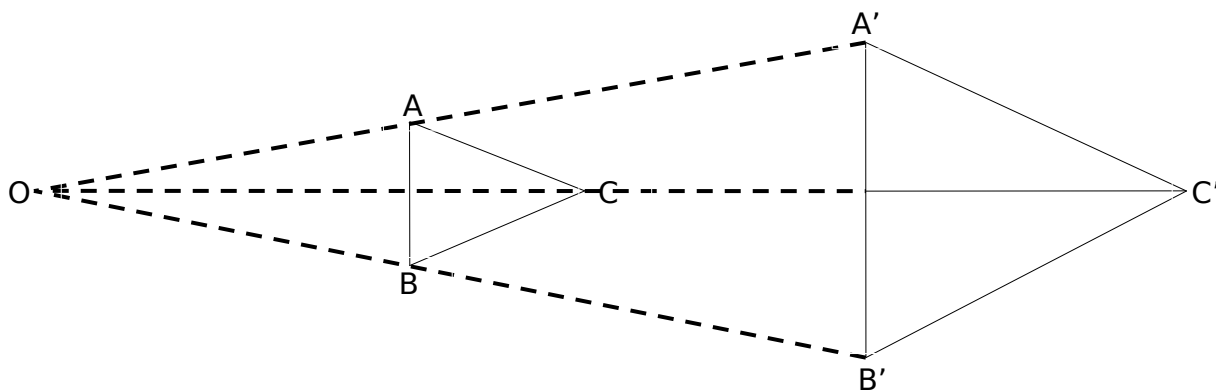
A. 3

B. $-\frac{1}{3}$

C. $\frac{1}{3}$

D. 7

28. In the figure below , let O be the center of enlargement such that $OA' = 3OA$, $OB' = 3OB$ and $OC' = 3OC$



What is the scale factor of enlargement for this figure

A. $\frac{1}{9}$

B. $\frac{1}{3}$

C. 1

D. 3

29. The sides of a polygon have lengths 5 , 7 , 8 , 11 and 19cm .The perimeter of a similar polygon is 100cm . Then what is the longer side length of the largest polygon?

A. 10cm

B. 38cm

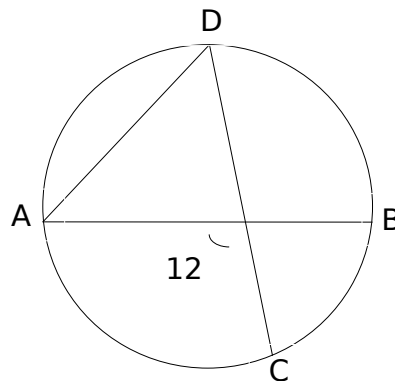
C. 22cm

D. 50cm

30. A playing card is drawn from a standard deck of 52 cards. What is the probability that the card is face card and club (two cards)?
- A. $\frac{3}{13}$ B. $\frac{8}{13}$ C. $\frac{1}{4}$ D. $\frac{3}{52}$
31. One of the following statements of probabilities is **NOT** probability of an even chance
- A. It will rain Tomorrow C. The day after Monday is Tuesday
- B. A newly born baby will be a boy D. Meteorologist predicts 50% chance
32. Which of the following is **NOT** true about probability of an event
- A. The sun will rise in the east is probability of certain event
- B. The month after December to be November is probability of impossible event
- C. Mulugeta answers 38 questions out of 40 questions, the probability of this question is unlikely.
- D. Choosing a red ball from a box of Ten black ball is probability of impossible event.

33. In the figure given to the right If arc $\widehat{BD}$ is twice of arc AC then what is the measurement of angle BAD

- A. $m(\angle BAD) = 40^\circ$
- B. $m(\angle BAD) = 60^\circ$
- C. $m(\angle BAD) = 120^\circ$
- D. $m(\angle BAD) = 80^\circ$



34. If $\triangle DEF \cong \triangle KLM$ such that $\overline{DE} = (2x + 2) \text{ m}$, $\overline{DF} = (5x - 1) \text{ m}$, $\overline{KL} = 2 \text{ m}$, $\overline{KM} = 3 \text{ m}$ and $\overline{EF} = 10 \text{ m}$, then what is the length of LM and the value of x respectively are?
- A. $\frac{5}{3} \frac{m \wedge 10}{3} m$ B. $2 \frac{m \wedge 10}{3} m$ C. $5 \frac{m \wedge 5}{3} m$ D. 2m and 30m

35. When $\frac{\sin(90-\theta)}{\cos(90-\theta)}$ is simplified it is equal to :
- A. $\cot \beta$ B. $\sin \beta$ C. $\sec \beta$ D. $\csc \beta$

36. A ladder of length $4\sqrt{3} \text{ m}$ leans against a vertical wall making an angle 60° with the wall at the top. How far is the foot of the ladder from the foot of the

wall and how high (h) is the top of the ladder from the foot of the wall on the ground respectively?

A. 8m and $16\sqrt{3}\text{ m}$

C. 6m and $2\sqrt{3}\text{ m}$

B. $2\sqrt{3}\text{ m}$ and 4 m

D. $2\sqrt{3}\text{ m}$ and 6 m

37. If ladder of length 20m leans against a vertical wall so that the base of ladder is $10\sqrt{3}$ meters from the wall. Then what is the angle between the ladder and the wall is:

A. 45°

B. 60°

C. 30°

D. does not determined

38. In the figure below to the right what is the value of h, If $\tan D = \frac{8}{5}$

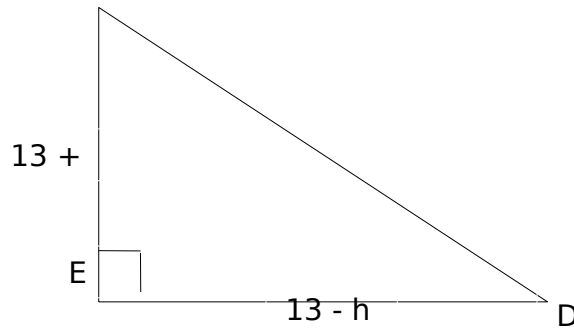
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A. $h = 13\text{m}$

B. $h = 16$

C. $h = 10\text{m}$

D. $h = 3\text{m}$



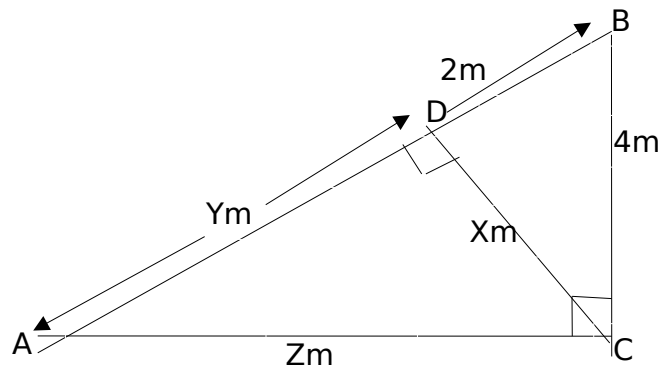
39. In the figure below, which of the following false about this value of the variables?

A. $X = 2\sqrt{3}\text{m}$

B. $Y = 6\text{m}$

C. $Z = 4\sqrt{3}\text{m}$

D. $AB = 12\text{m}$



40. An altitude of an equilateral triangle is θm , then the area of this triangle is equal to:

A. $\frac{\theta^2\sqrt{3}}{4}\text{m}^2$

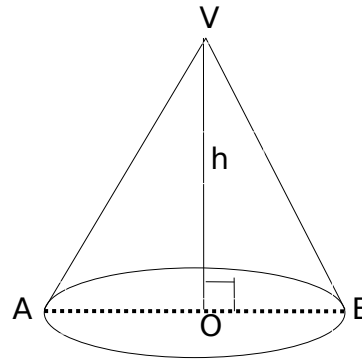
B. $\frac{\theta^2\sqrt{3}}{9}\text{m}^2$

C. $\frac{\theta^2\sqrt{3}}{3}\text{m}^2$

D. $\frac{\theta^2\sqrt{3}}{2}\text{m}^2$

41. Which one of the following statements is **NOT** necessarily true about right circular cone given below?

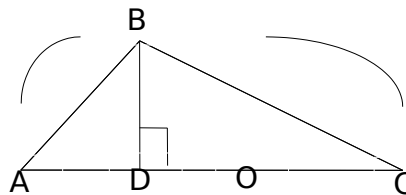
- A. VB is a slant height of a cone
- B. VO is the height of a cone
- C. V is the base of the cone
- D. VA and VB are not equal



42. Which one of the following statements is **NOT** necessarily true about a regular pyramid?
- A. It is a right pyramid
 - B. Its lateral edges are equal in length
 - C. Its base is any polygon
 - D. Its lateral faces are isosceles triangles

43. In the figure below O is the center of the semicircle $\widehat{ABC}$, $\overline{BD} \perp \overline{AC}$, $\overline{DO} = 3\text{m}$ and $BD = 6\text{m}$. Then what is the radius of the circle?

- A. $3 - 3\sqrt{5}\text{m}$
- B. $5\sqrt{3}\text{m}$
- C. $-3 + 3\sqrt{5}\text{m}$
- D. $3\sqrt{5}\text{m}$



44. Which of the following is **NOT** true about the line whose equation is $3x - 5y = 15$?
- A. The x - intercept is 5
 - B. The y intercept is -3
 - C. The slope is $\frac{3}{5}$
 - D. The line passes through the point (1,3)