1) Find the value of $[(÷\frac{1}{8})^2 ÷ (-\frac{1}{4})^3]^{-1}$

a) 1

b) -1

c) 4

d) -2

Handwritten: $4×4×4 = 16×4 = 64$

$[\frac{1}{64} ÷ -\frac{1}{64}]^{-1}$

$(\frac{-1}{1})^{-1} = \frac{1}{-1} = -1$
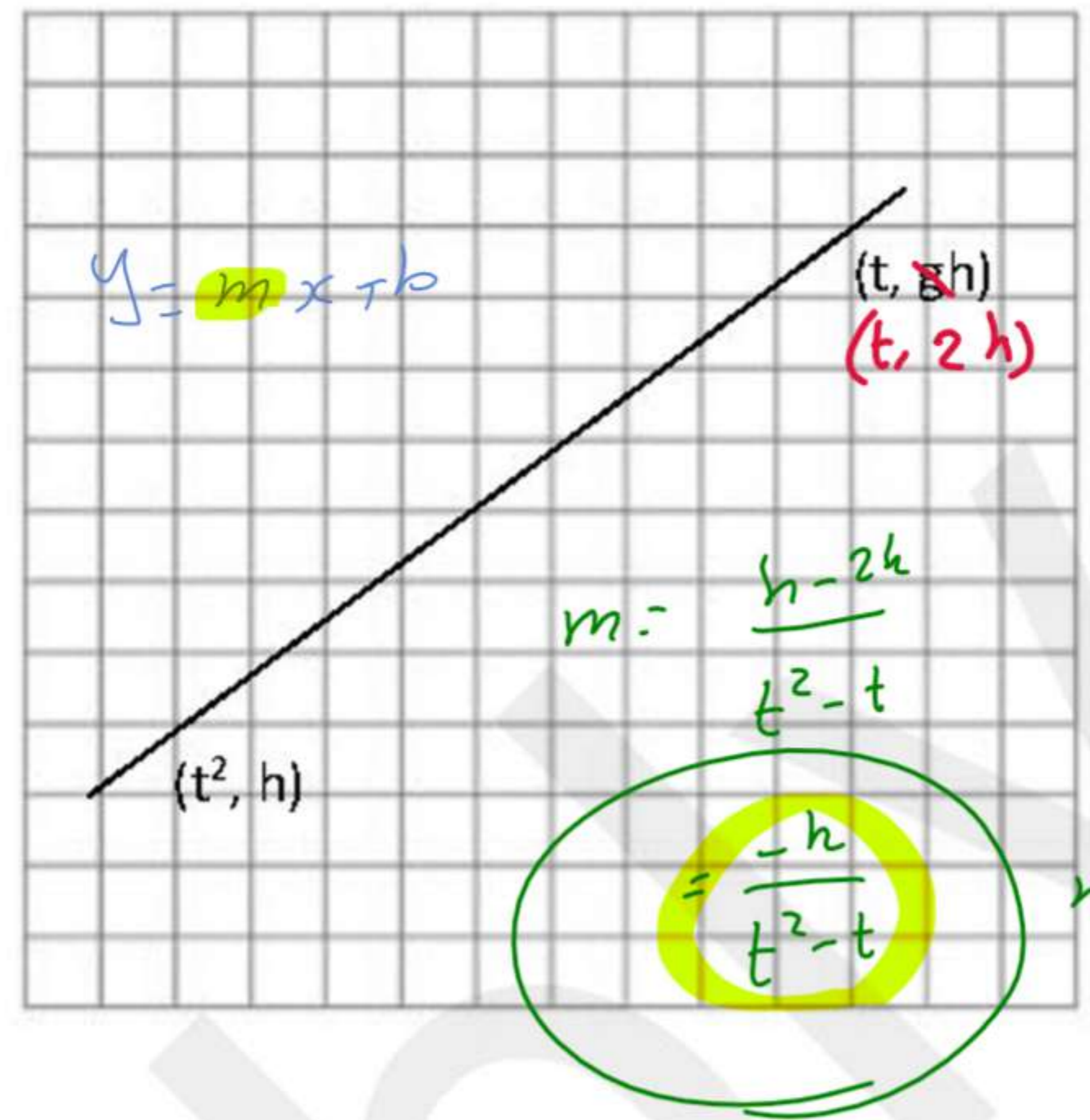
2) If $2x - y - z = 44$ and $6x - 3y = 13$, Find $3z$

a) 119

b) -119

c) 132

d) -132

Handwritten: $6x - 3y - 3z = 132$

$13 - 3z = 132$

$13 - 132 = 3z$

$-119 = 3z$

3) Line L passes through the points as shown above, $g=2$, which of the following represents the equation of the line?

Handwritten on graph: $y = mx + b$, $(t, 3h)$, $(t, 2h)$

$m = \frac{h - 2h}{t^2 - t} = \frac{-h}{t^2 - t} = m$

a) $y - 2b = \frac{-h(x-t)}{t^2 - t}$

Handwritten: $\frac{-hx}{t^2 - t}$ $+ \frac{ht}{t^2 - t}$

b) $y - 2b = \frac{h(x-t)}{t^2 - t}$

c) $y - 2b = \frac{h(x+t)}{t^2 - t}$

d) $y + 2b = \frac{h(x-t)}{t^2 - t}$

$(a+b)^2 = a^2 + 2ab + b^2$

$(a-b)^2 = a^2 - 2ab + b^2$

$a^2 - b^2 = (a-b)(a+b)$

4) What is the value of $\left(\sqrt{9+2\sqrt{5}} + \sqrt{9-2\sqrt{5}}\right)^2$?

$(a + b)^2 = 5.7$

a) $\sqrt{18 + 2\sqrt{61}}$

$9 + 2\sqrt{5} + 2\sqrt{5} + 9 - 2\sqrt{5}$

b) $\sqrt{18 - 2\sqrt{61}}$

$18 + 2\sqrt{5}$

c) $18 + 2\sqrt{61}$

d) $18 - 2\sqrt{61}$

x	Y
0.5	1
1	0.5
1.5	1/3

6) Which if the following in true based on the given table above:

a) y varies directly with x , K = 0.5

b) y varies directly with x, constant K = 2

c) y varies inversely with x, constant K = -2

d) y varies inversely with x, K = 0.5

5) The slopes of the two perpendicular lines with slope m_1 and m_2 are

a) $m_1 * m_2 = -1$ $m = 3$ $m = \frac{-1}{3}$

b) $\frac{m_1}{m_2} = -1$

c) $m_1 + m_2 = -1$ $3 \times \frac{-1}{3} = -1$

d) $m_1 - m_2 = -1$

7) A pentagon with perimeter equal 153cm and the ratio of its sides 2 : 3 : 3 : 5 : 4, Find the length of the smallest side?
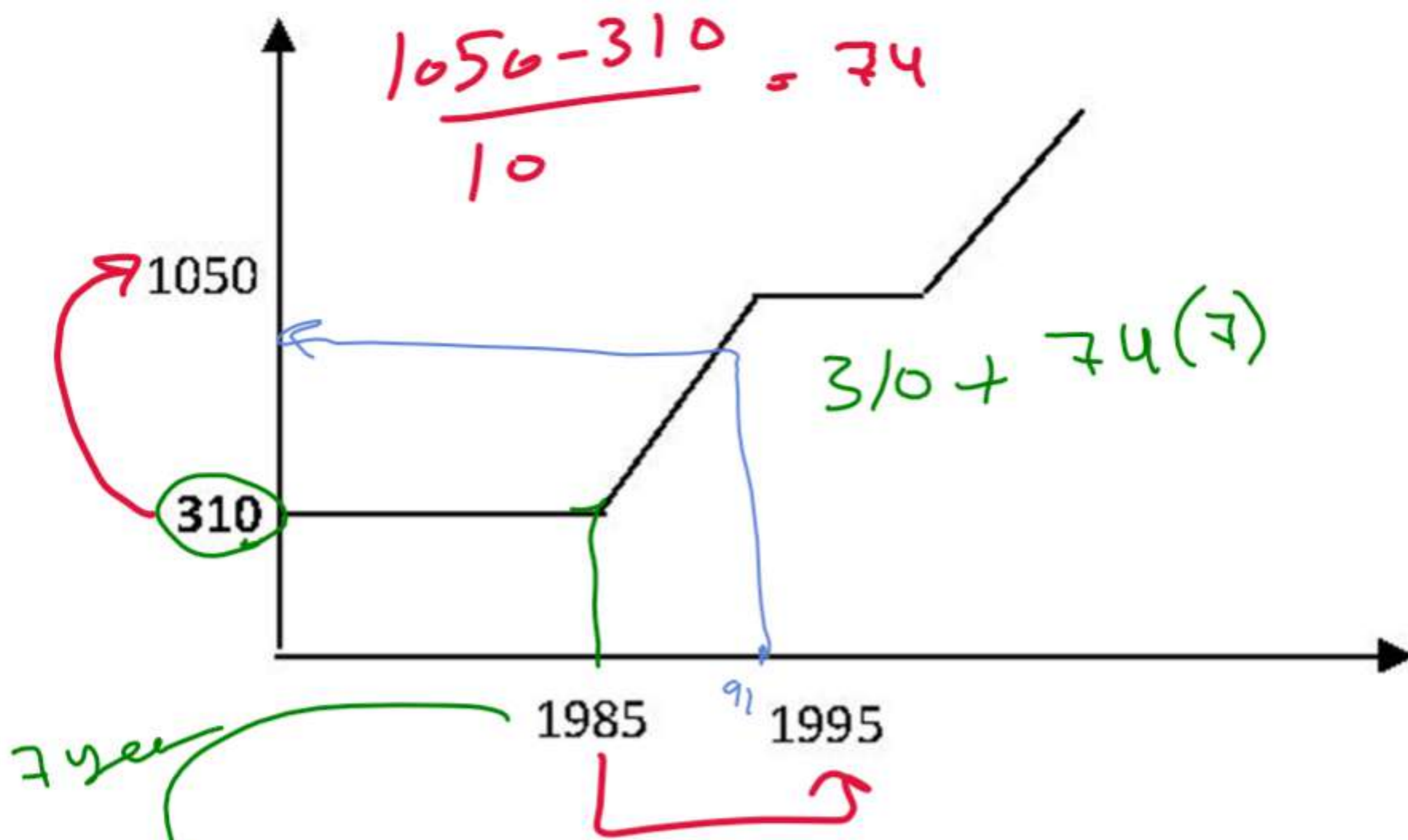
a) 18

b) 21

c) 45

d) 36

Per

$2 : 3 : 3 : 5 : 4 : 17$

x $: 153$

$\frac{2 \times 153}{17} = 18$

MATH = $\sqrt{}$ KNOWLEDGE

$$\frac{1056-310}{10} = 74$$

1050

310

$310 + 74(7)$

7 year

1985   91   1995

8) Based on the graph above. What is the best value at 1992

a) 800

b) 828

c) 500

d) 450

9) Jamil has 10 shirts, Hana has 4 less than Ahmed While Jamil has 6 more than Hana, How many shirts they have together?

$J = 10$

a) 8

$H = A - 4$

b) 10

$J = 6 + H$

$H = 4$

c) 12

$A = 8$

$J = 10$

d) 22

$4 + 8 + 10 = 22$

10) If $\sin^2 x = 0.7$, what is the value of $2\cos^2 x$:

a) 0.3

$\sin^2 x + \cos^2 x = 1$

b) 0.6

$0.7 + \cos^2 x = 1$

c) 0.2

$\cos^2 x = 0.3$

d) 0.5

$2\cos^2 x = 2(0.3)$

$\frac{1}{4}(6) = 1.5$ H   4.5

$\frac{1}{2}(3)(1.5)$ $\frac{1}{2}(4.5)(3)$

2.25   = 6.75

$\frac{\pi r^2}{4}$

$\frac{1}{2}(3)(3)$ $\frac{\pi(3)^2}{4} = \frac{9\pi}{4}$

4.5

$A\square -$
$s^2 -$
$6^2 -$
$36 -$
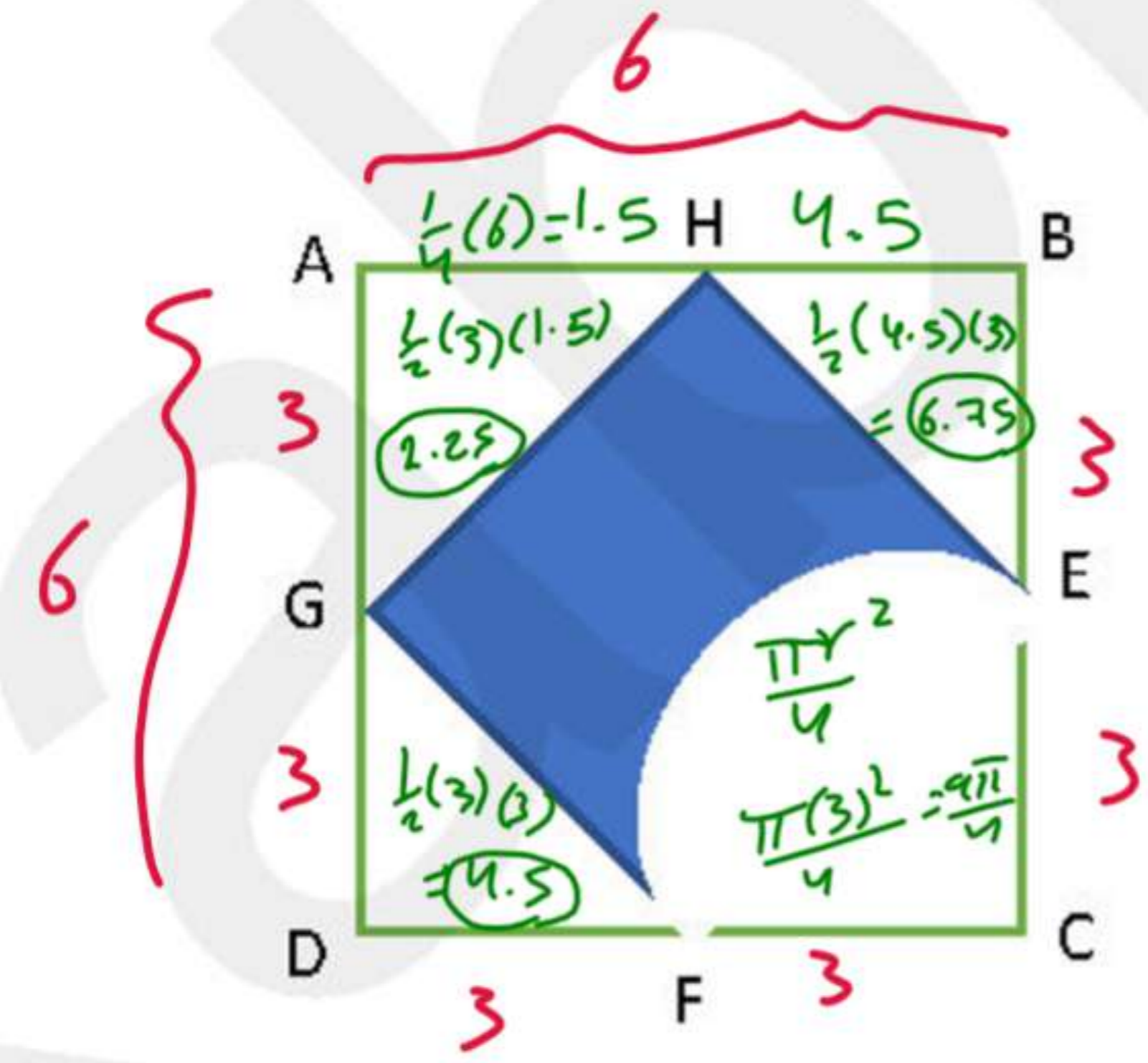
$2.25 + 4.5 + 6.75 + \frac{9\pi}{4}$

11) ABCD is a square with side length = 6, G, E, F are midpoints, $AH = \frac{1}{4} AB$

Find the area of shaded region?

a) 20.565

b) 17.7

c) 15.435

d) 123

Math is Root of Knowledge

MATH = √ KNOWLEDGE

12) If 100 km/h is equal to $\frac{5(10)^3}{a}$ meter / min, What is the value of a?
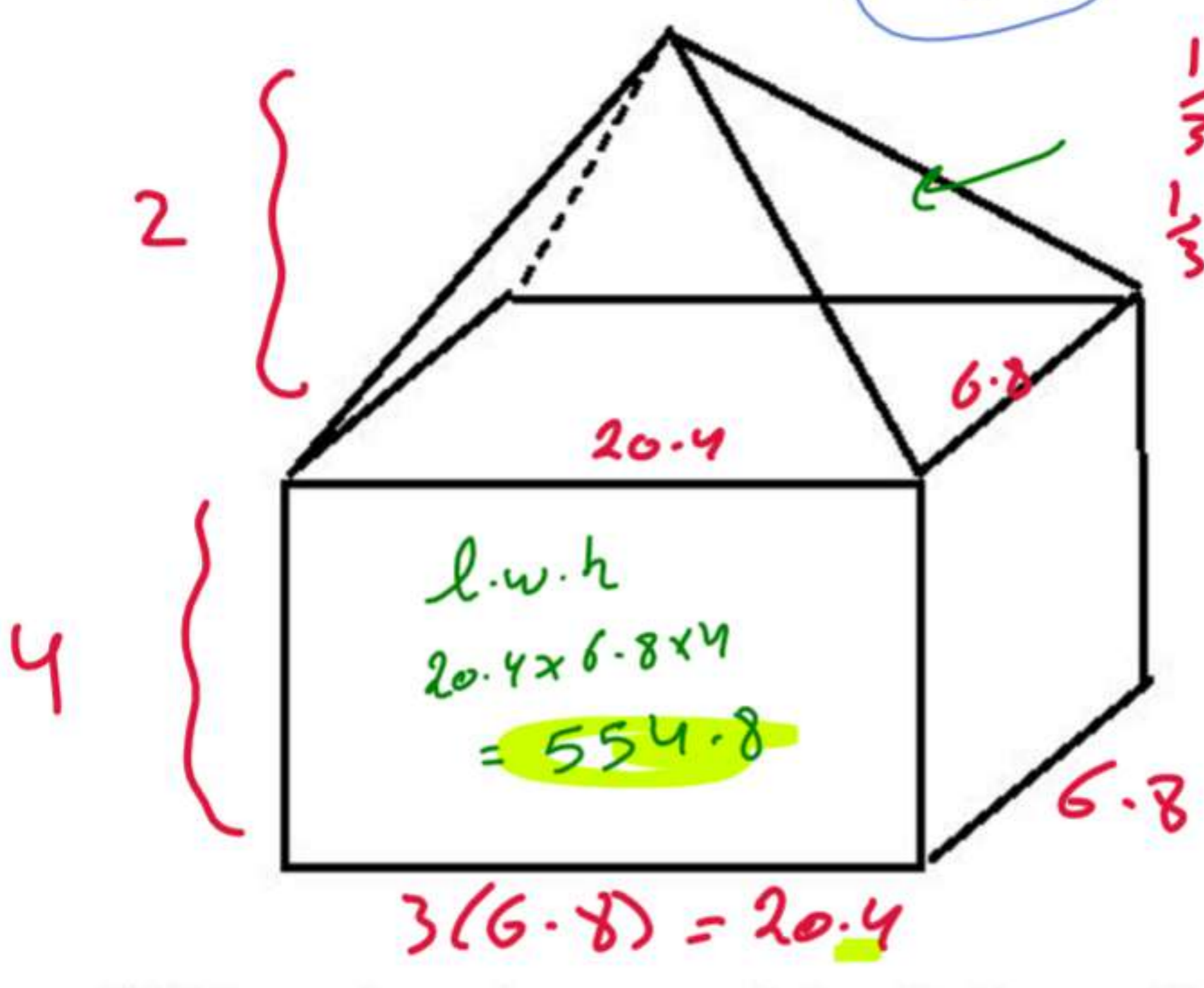
a) 1

b) 2

c) 3

d) 4

$\frac{100 \times 1000}{1 \times 60} \frac{Km}{h}$

$\frac{100 \times 1000}{1 \times 60} = \frac{5(10)^3}{a}$

shift solve

$\frac{1}{3} l \cdot w \cdot h$

$\frac{1}{3}(20.4)(6.8)(2)$

$= 92.48$

$l \cdot w \cdot h$

$20.4 \times 6.8 \times 4$

$= 554.8$
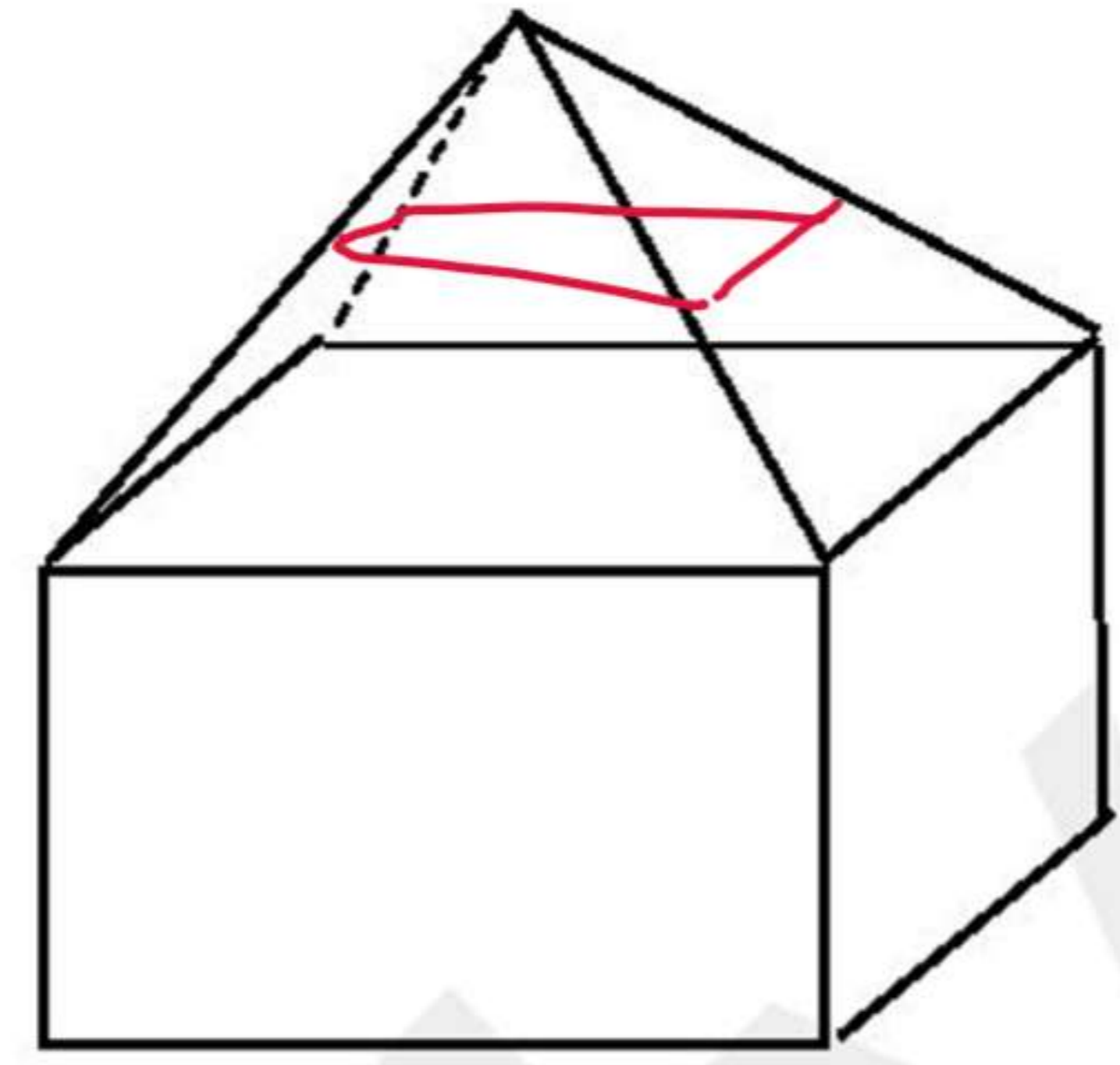
$3(6.8) = 20.4$

13) The prism above consists of a Pyramid with height 2cm and cuboid its height is 4 cm and has a base its side width equal 6.8cm and length equal thrice the width. What is the volume of the prism?

a) 100

b) 647.36

c) 567
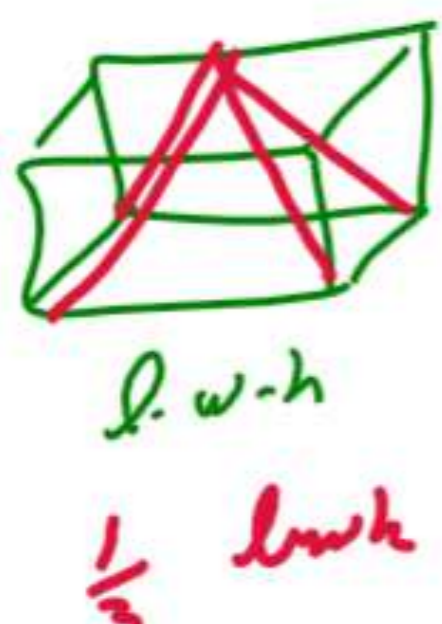
d) 554.88

$554.8 + 92.48$

14) A horizontal cross section is cut from the prism above. Which of the following represent the shape of that cross section?

a)

b)

c)

15) What is the product pf the solutions of the equation below?

$$-2x^2 + 2x + 3$$

a) -1.5

b) 1.5

c) 1

d) -1
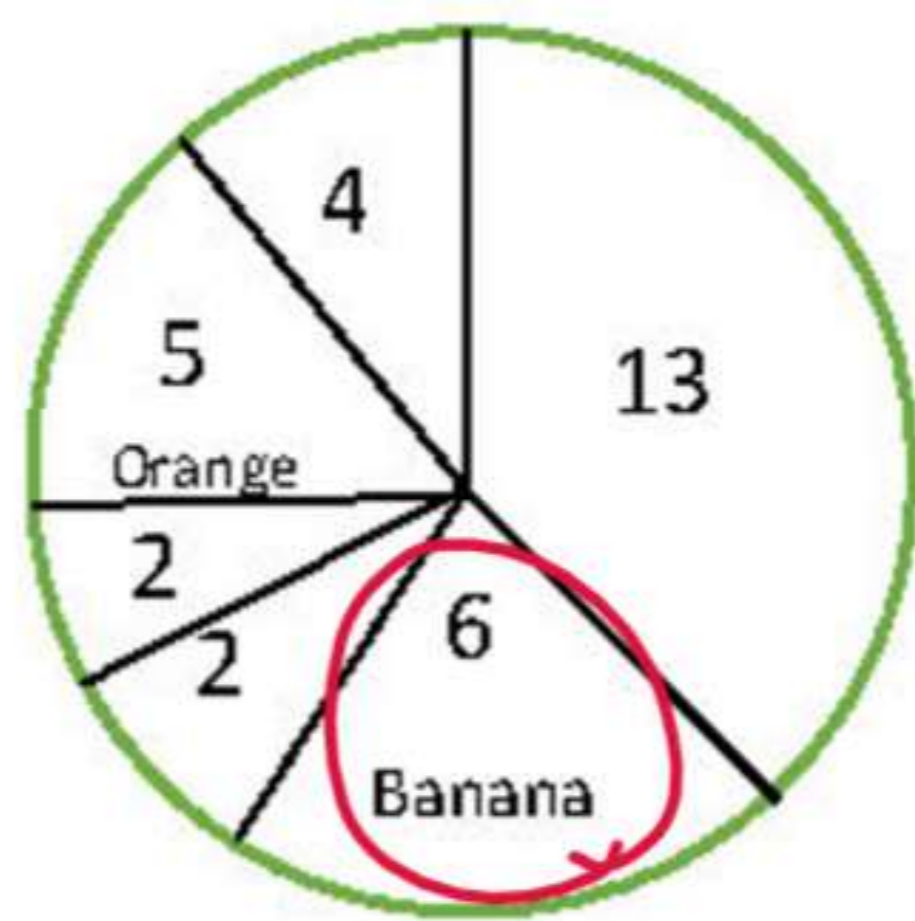
$l \cdot w \cdot h$

$\frac{1}{3} lwh$

$\pi r^2 h$

$\frac{1}{3} \pi r^2 h$

Math is Root of Knowledge

MATH = √KNOWLEDGE

Prob. = $\dfrac{Part}{Total}$

$\dfrac{6}{5+4+13+2+2+6}$

4
5
Orange
2
2
13
6
Banana

16) What is the Probability of Banana?
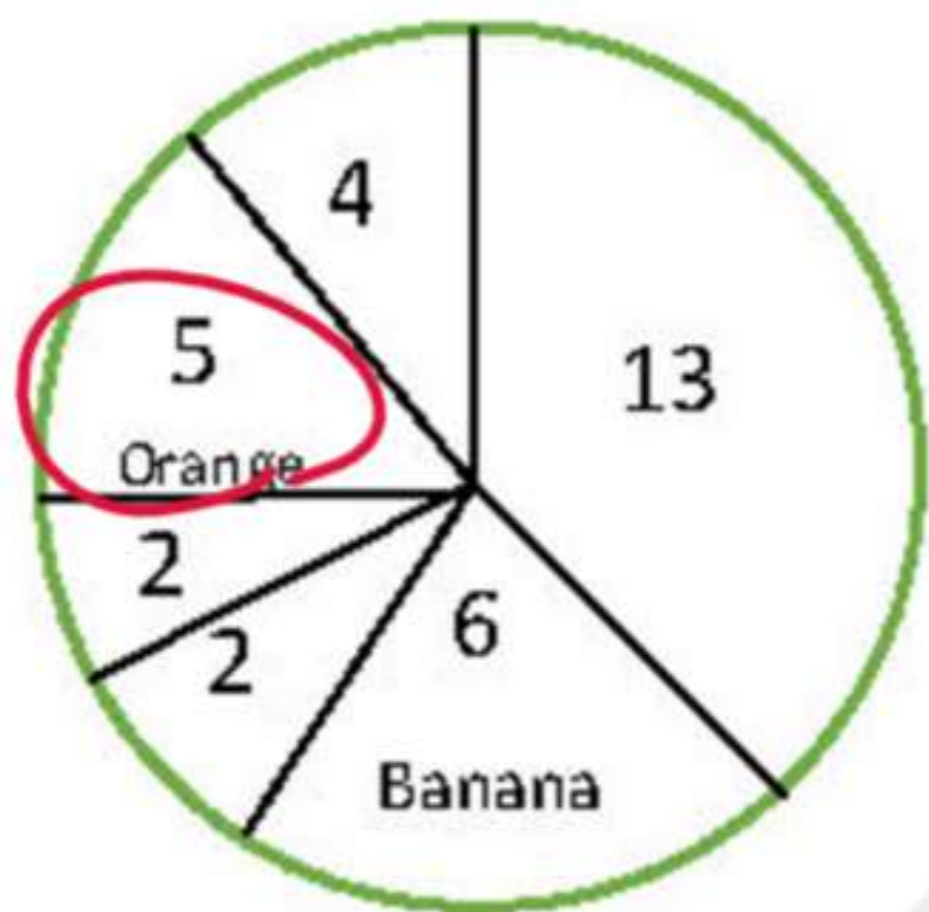
a) 3/16

b) 5/16

c) 0.635

d) 0.27

$\dfrac{6}{32} = \dfrac{3}{16}$

$\dfrac{Part}{Total} \times 100$

$= \dfrac{5}{32} \times 100$

$= 15.625$

4
5
Orange
2
2
13
6
Banana

17) What is the percentage of Orange?

a) 0.15

b) 5

c) 15.625

d) 27.125

18) If $\sqrt{x-2} - a = 5$. What is the value of x when a = -3?

a) 4

b) 6

c) 14

d) 19

$\sqrt{x-2} + 3 = 5$

$\sqrt{x-2} = 2^2$

$x - 2 = 4$

$x = 6$

19) If $243^{x+1} = 27^{2x-3}$ Find the value of x:

a) 14

b) 4

c) 19

d) 16

shift solve

243^{14+1} $27^{2(14)-3}$

=

Math is Root of Knowledge

MATH = √ KNOWLEDGE

20) $\frac{x}{4} \geq \frac{x}{3} + 3.$

Which of the following could be the value of x?

a) -37

b) -23.5

c) -24.5

d) -23.9

$\frac{12x}{4} - \frac{12x}{3} \geq 3$

$\frac{-1}{12} x \geq 3$

$x \leq 3 \div \frac{-1}{12}$

$x \leq -36$

21) If $0 \leq 2y \leq 2x-1$

Find the least value of x that satisfying the inequality above.

a) 0.5

b) 2.5

c) 1.5

d) 3.5

$0 \leq 2x - 1$

$2x - 1 = 0$

$2x = 1$

$x = \frac{1}{2}$

22) What is the sum of the solutions of the equation below?

$x^4 - 2x^2 - 3$

a) 0

b) 5

c) 2

d) -5

$0 x^3$

$x^{10} + 5x^9 - 8x^8 + 7x^2 + 9$

sum -5

23) If $t \neq 2$ and $\frac{t}{t-2} \neq \frac{5}{2}$, Find the value of $3t + 4$?

a) 4

b) 14

c) 16

d) 19

$5(t - 2) = 2t$

$5t - 10 = 2t$

$5t - 2t = 10$

$3t = 10$

$10 + 4 = 14$

24) If $2x + y = -1$ and $2y^2 = 8$, what is the value of x, when y < 0?

a) -0.5

b) -1.5

c) 2

d) 1

$2y^2 = \frac{8}{2}$

$y^2 = 4$

$y = \pm\sqrt{4}$

$y = -2$

$2x + 2 = -1$

$2x = -1 - 2$

$2x = -3$

$x = \frac{-3}{2}$

	Agree	Disagree
Female	150	70
Male	200	50

25) What is the probability of male?

a) 0.5

b) 0.45

c) 0.23

d) 0.53

$Prob. = \frac{Part}{Total} = \frac{200 + 50}{150 + 70}$
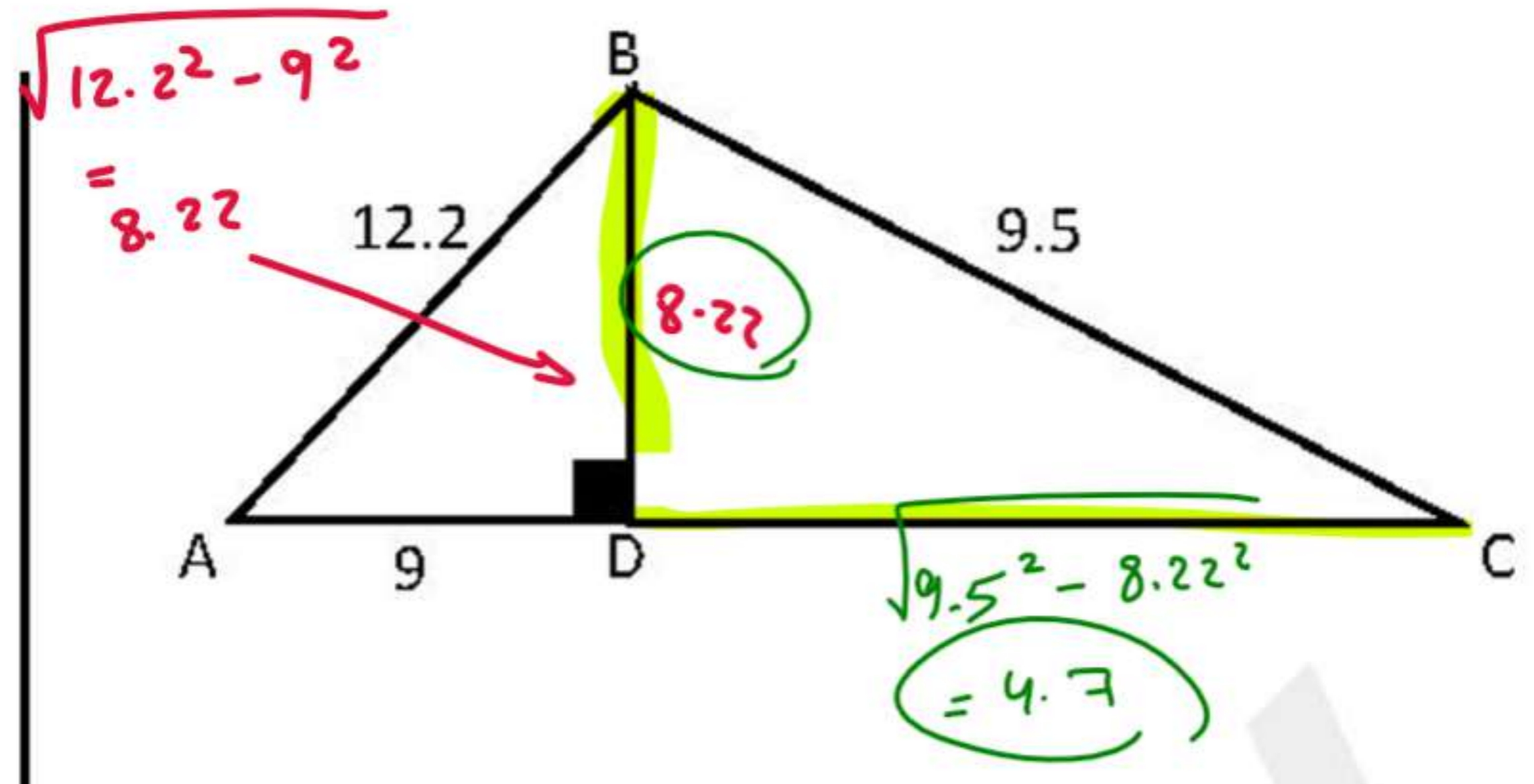
$\frac{200 + 50}{}$

$= 0.53$

26) A dice is tossed two times, what is the probability that the sum of two time is 9?

a) 1/9

b) 1/18

c) 1/36

d) 9/24

Handwritten: −3,6 / −6,3 / −4,5 / −5,4 ; $\frac{y}{6\times6} = \frac{1}{9}$

	Adults	Children
Day 1	310	720
Day 2	720	130
Day 3	120	170
Day 4	210	211

Handwritten: 1360 ; 1231

27) The table above shows the number of tickets sold during four days as shown, Adult tickets costs 12$, Child tickets cost 7.5$, What us the total amount during the four days?

a) 16 320

b) 9 232.5

c) 25 552.5

d) 230 000

Handwritten: 1360×12 + 1231×7.5

Handwritten on triangle: $\sqrt{12.2^2-9^2}=8.22$; 8.22 ; $\sqrt{9.5^2-8.22^2}=4.7$; labels 12.2, 9.5, 9, A, B, C, D

28) In the triangle above, angle B is 90°, BD is perpendicular to AC, Find the value of BD + DC

a) 13.6

b) 4.6

c) 18.2

d) 12.8

Handwritten: 8.22 + 4.7

29) 25, 11, 12, 15, 17, 21, 22, 23, 30

Handwritten reorder: 11, 12, 15, 17, (21), 23, 23, 25, 30

For the set of data above if the median is a, range is b, max value is c. what is the value of $|ab - bc|$?

a) 171

b) 392

c) 750

d) 1280

Handwritten: a=21 ; b=30−11=19 ; c=30 ; $|21\times19 - 19\times30| = 171$

30) Abdo thew 10% of his books, gave his sister 12, donate 20 kept 4 with him, how many books he had originally?

a) 32

b) 34

c) 36

d) 40

Handwritten: 0.10b + 12 + 20 + 4 = b ; shift solve

Handwritten bottom: Mean = $\frac{sum}{no.}$; Mode = Most repeated ; Median = Middle "arrange" ; Range =