

Quiz 5

Name:

Franci

Perm Number:

5894504

- 1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$(2 + h^2)$$

$$x^2 - x + 2 + h = 0$$

$$x^2 - x + 2 = h - 2$$

$$x^2 - x = h - 2 + x^2$$

$$-x = h - 2 + x^2$$

$$\boxed{}$$

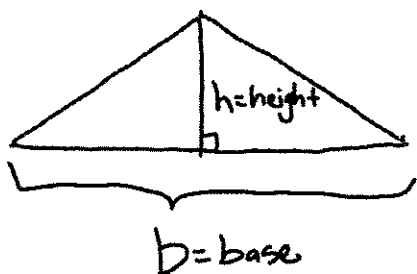
$$1^2 \quad 4^2 \quad 16$$

- 2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$0 + 3 + 8 + 15$$

$$\sum_{n=0}^4 f(n) = \boxed{26}$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is 10m^2 . Express the perimeter in terms of the height.



$$\frac{b \cdot h}{2} = 10\text{m}^2$$

$$\frac{b \cdot h}{2} = 10$$

$$\frac{b \cdot h}{2} = \frac{20\text{m}^2}{b}$$

$$\sqrt{\frac{20\text{m}^2}{b} + \left(\frac{b}{2}\right)^2} = \sqrt{c^2}$$

$$\frac{b \cdot h}{2} = 10$$

$$h^2 + \frac{1}{2}b^2 = c^2$$

$$\frac{b \cdot h}{h} = \frac{20}{h}$$

$$\frac{\frac{1}{2}b^2}{\frac{1}{2}} = \frac{c^2 - h^2}{\frac{1}{2}}$$

$$\sqrt{b^2} = \sqrt{\frac{c^2 - h^2}{\frac{1}{2}}}$$

$$b = \sqrt{\frac{c^2 - h^2}{\frac{1}{2}}}$$

$$h^2 + \frac{c^2 - h^2}{\frac{1}{2}} = c^2 - \left(\frac{c^2 - h^2}{\frac{1}{2}}\right)$$

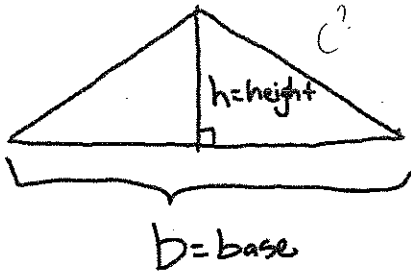
$$\sqrt{\frac{400}{h^2} + h^2} = \sqrt{c^2}$$

Perimeter =

$$\frac{20\text{m}^2}{h} + 2\left(\frac{\sqrt{\frac{400}{h^2} + h^2}}{2}\right)$$

3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is 10m^2 . Express the perimeter in terms of the height.

$$P = 2c + b$$



$$A = \frac{1}{2} b \cdot h$$

$$A = 10\text{m}^2$$

$$\sqrt{\left(\frac{1}{2}b\right)^2 + (h)^2} = \sqrt{c^2}$$

$$c = \sqrt{\left(\frac{1}{2}b\right)^2 + h^2}$$

$$c = \sqrt{\left(\frac{1}{2} \cdot \frac{20}{h}\right)^2 + h^2}$$

$$c = \sqrt{\frac{20}{2h} + h^2}$$

$$c = \sqrt{\frac{10}{h} + h^2}$$

$$P = 2\left(\sqrt{\frac{10}{h} + h^2}\right) + \frac{20}{h}$$

$$\frac{10}{h} = \frac{\frac{1}{2} b \cdot h}{h}$$

$$2\left(\frac{1}{2}b\right) = 2\left(\frac{10}{h}\right)$$

$$b = \frac{20}{h}$$

Perimeter =

$$2\left(\sqrt{\frac{10}{h} + h^2}\right) + \frac{20}{h}$$

Quiz 5

$$(z+h)(z+h)$$

$$4+2h+2h+h^2$$

Name:

Richard Monts Lemus

Perm Number:

9709999

$$3^2 - 3 + 2$$

$$9 - 3 + 2$$

$$6$$

$$4+4h+h^2$$

1) If x is increased from 2 to $2+h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$(2+h)^2 - (2+h) + 2$$

$$- 2^2 - 2 + 2 = 4$$

$$4 + 4h + h^2 - 2 - h + 2$$

$$(h^2 + 3h + 4) - 4$$

$$h^2 + 3h$$

$$2^2 - 2 + 2 = 4$$

$$\begin{pmatrix} 2 \\ 2+h \end{pmatrix}$$

$$(2+h)^2 - (2+h) + 2$$

$$4 - ((2+h)^2 - (2+h) + 2)$$

$$4 - (4 + 4h + h^2 - 2 - h + 2)$$

$$4 - (h^2 + 4h - h + 4 + 2 - 2)$$

$$4 - (h^2 + 3h + 4)$$

$$4 - h^2 - 3h - 4$$

$$-h^2 - 3h$$

increase not decrease

$$h^2 + 3h$$

2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$n^2 - 1$$

$$(0^2 - 1) + (1^2 - 1) + (2^2 - 1) + (3^2 - 1) + (4^2 - 1)$$

$$-1 + 0 + 3 + 8 + 15$$

$$2 + 8 + 15$$

$$10 + 15$$

$$25$$

$$\sum_{n=0}^4$$

$$f(n)$$

$$=$$

$$25$$

Quiz 5

Name:

Jordan Nguyen

Perm Number:

4170098

1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$(2+h)^2 - (2+h) + 2$$

$$(2+h)(2+h)$$

$$4 + 2h + 2h + h^2$$

$$h^2 + 4h + 4$$

$$h^2 + 3h + 6$$

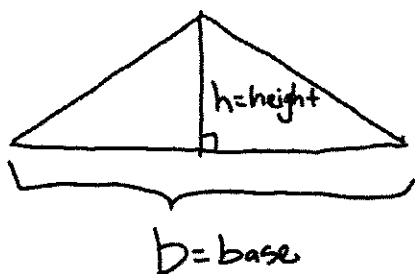
$$h^2 + 3h + 4$$

2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$\begin{array}{l} 0-1 = -1 \\ 1-1 = 0 \\ 4-1 = 3 \\ 9-1 = 8 \\ 16-1 = 15 \end{array} \left. \begin{array}{l} \\ \\ \\ \\ \end{array} \right\} \begin{array}{l} 2 \\ 23 \end{array} \left. \begin{array}{l} \\ \\ \\ \\ \end{array} \right\} 25$$

$$\sum_{n=0}^4 f(n) = 25$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is $10m^2$. Express the perimeter in terms of the height.



$$A = \frac{1}{2}bh$$

$$A = 10$$

Perimeter =

Quiz 5

Name:

Christian Perez

Perm Number:

7987662

- 1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$2 \rightarrow 2+h$$

$$(2+h)(x^2 - x + 2)$$

$$2x^2 - 2x + 4 + hx^2 - hx + 2h$$

$$2x^2 - 2x + 4 + hx^2 - hx + 2h$$

- 2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$(0^2 - 1) + (1^2 - 1) + (2^2 - 1) + (3^2 - 1) + (4^2 - 1)$$

$$0 - 1$$

$$-1 + 0 + 3 + 8 + 15$$

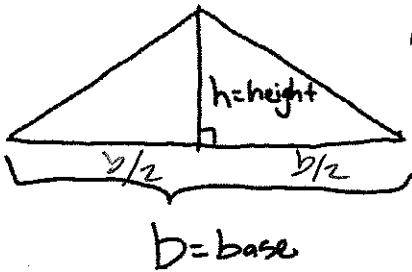
$$2 + 8 + 15$$

$$10 + 15 \Rightarrow$$

$$\sum_{n=0}^4 f(n) =$$

$$25$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is $10m^2$. Express the perimeter in terms of the height.



$$A = 10m^2$$

$$A = \frac{1}{2}bh$$

$$10m^2 = \frac{bh}{2}$$

$$P = b + 2c$$

$$b = ?$$

$$10 = \frac{1}{2}bh$$

$$\frac{2}{1} \cdot 10 = \frac{bh}{2} \cdot \frac{2}{1}$$

$$20 = b \quad \frac{20}{h} = b$$

$$P = \frac{20}{h} + 2\sqrt{h^2 + \left(\frac{20}{h}\right)^2} \rightarrow \frac{20}{h} + 2\sqrt{h^2 + \left(\frac{20 \cdot 1}{h \cdot 2}\right)^2} \rightarrow 2\sqrt{h^2 + \frac{400}{h^2} \cdot \frac{1}{4}}$$

$$\frac{20}{h} + 2\sqrt{h^2 + \frac{400}{4h^2}} \rightarrow \frac{100}{h^2}$$

$$\frac{20}{h} + 2\sqrt{h^2 + \frac{100}{h^2}} = P$$

Perimeter =

$$\frac{20}{h} + 2\sqrt{h^2 + \frac{100}{h^2}}$$

Quiz 5

Name:

Andrew Luu

Perm Number:

4348439

1) If x is increased from 2 to $2+h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

x inc from 2 to $2+h$ $4 - 2 + 2$

$$\& (2+h)^2 - (2+h) + \cancel{2} \quad 4 - 2$$

$$(2+h)(2+h) \\ 4 + 4h + h^2 - \cancel{2+h} + \cancel{2}$$

$$6 + h^2 + 5h$$

$$h^2 + 5h + 4$$

$$h^2 + 5h + 4$$

$$-4$$

2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

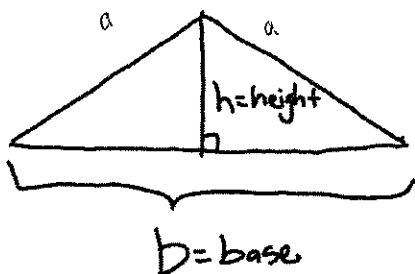
$$(0^2 - 1) + (1^2 - 1) + (2^2 - 1) + (3^2 - 1) + (4^2 - 1)$$

$$-1 + 0 + 3 + 8 + 15$$

$$2 + 8 + 15$$

$$\sum_{n=0}^4 f(n) = 25$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is $10m^2$. Express the perimeter in terms of the height.



$$P = 2a + b \quad P = 2a + b$$

$$A = \frac{1}{2} b \cdot h$$

$$A = 10m$$

$$\left(\frac{2}{1}\right) 10 = \frac{1}{2} \cdot b \cdot h \left(\frac{2}{1}\right)$$

$$20 = b \cdot h$$

$$\frac{20}{b} = h$$

$$\frac{20}{h} = b$$

$$h^2 + \left(\frac{b}{2}\right)^2 = a^2$$

$$h^2 + \left(\frac{20}{h}\right)^2 = a^2$$

$$h^2 + \left(\frac{40}{h}\right)^2 = a^2$$

$$2 \left(\sqrt{h^2 + \left(\frac{40}{h}\right)^2} \right) + \frac{20}{h}$$

$$\sqrt{h^2 + \left(\frac{40}{h}\right)^2} = a$$

$$\frac{h^4 + 1600}{h^2}$$

Perimeter =

$$2 \left(\sqrt{h^2 + \left(\frac{40}{h}\right)^2} \right) + \frac{20}{h}$$

Quiz 5

Name:

Ricardo de la Cebada

Perm Number:

849098-4

- 1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$\begin{aligned}
 & (2+h)^2 - (2+h) + 2 \\
 & (2+h)(2+h) - (2+h) + 2 \\
 & (4 + 2h + 2h + h^2) - (2+h) + 2 \\
 & h^2 + 4h + 4 - (2+h) + 2 \\
 & h^2 + 3h + 2 + 2 \\
 & h^2 + 3h + 4
 \end{aligned}$$

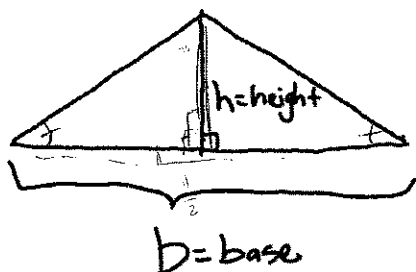
$$h^2 + 3h + 4$$

- 2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$\begin{aligned}
 & h^2 - 1 \\
 & n = 0^2 \\
 & 0^2 - 1 \\
 & 0 - 1 \\
 & f(n) = -1
 \end{aligned}$$

$$\sum_{n=0}^4 f(n) = -1$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is 10m^2 . Express the perimeter in terms of the height.



$$a = 10\text{m}^2$$

$$a = b(h) \frac{1}{2}$$

$$P = \left(\frac{b}{2}\right) + h$$

Perimeter =

Quiz 5

Name:

Ebony Negrete

Perm Number:

5705215

1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$2 = 2 + h$$

$$h^2 - h + 2$$

$$\uparrow h$$

$$h^2 - h$$

2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

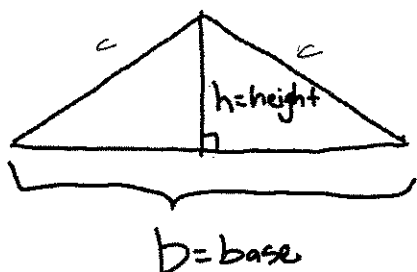
$$(0^2 - 1) + (1^2 - 1) + (2^2 - 1) + (3^2 - 1) + (4^2 - 1)$$

$$-1 + 0 + 3 + 8 + 15$$

$$= 25$$

$$\sum_{n=0}^4 f(n) = 25$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is 10m^2 . Express the perimeter in terms of the height.



$$A = \frac{1}{2}bh \quad P = 2c + b$$

$$10 = \frac{1}{2}bh$$

$$\frac{20}{h} = \frac{bh}{h}$$

$$b = \frac{20}{h}$$

$$\frac{20}{h} \div 2$$

$$\frac{20}{h} \times \frac{1}{2} = \frac{20}{2h} = \frac{10}{h}$$

$$a^2 + b^2 = c^2$$

$$P = 2 \left(\frac{\sqrt{10h}}{h} + \sqrt{h} \right) + \frac{20}{h}$$

$$\sqrt{\frac{10}{h}} + \sqrt{h} = \sqrt{c}$$

$$c = \frac{\sqrt{10h}}{h} + \sqrt{h}$$

Perimeter =

$$2 \left(\frac{\sqrt{10h}}{h} + \sqrt{h} \right) + \frac{20}{h}$$

Quiz 5

Name:

Tonglin Wu

Perm Number:

5668660.

1) If x is increased from 2 to $2+h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$x_1 = 2$$

$$x_2 = 2+h$$

$$y_1 = 4 - 2 + 2 = 4$$

$$y_2 = (2+h)^2 - (2+h) + 2$$

$$= 4 + h^2 + 4h - 2 - h + 2$$

$$= h^2 + 3h + 4$$

$$\therefore \text{Increase} = h^2 + 3h + 4 - 4 = h^2 + 3h$$

$$h^2 + 3h$$

2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$\sum_{n=0}^4 n^2 - 1 = (-1) + \cancel{(0-1)} + \cancel{(1-1)} + \cancel{(2-1)} + \cancel{(3-1)} + \cancel{(4-1)}$$

$$= (0^2 - 1) + (1^2 - 1) + (2^2 - 1) + (3^2 - 1) + (4^2 - 1)$$

$$= -1 + 0 + 3 + 8 + 15$$

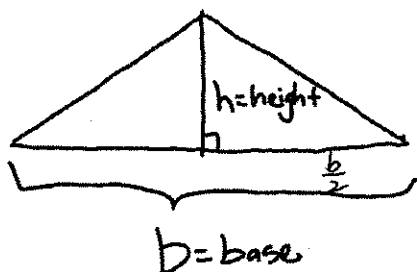
$$= -1 + 11 + 15$$

$$= 10 + 15$$

$$= 25$$

$$\sum_{n=0}^4 f(n) = 25$$

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is $10m^2$. Express the perimeter in terms of the height.



$$\frac{1}{2}bh = 10$$

$$bh = 20 \quad b = \frac{20}{h}$$

$$C = 2\sqrt{h^2 + \left(\frac{b}{2}\right)^2} + b$$

$$= 2\sqrt{h^2 + \left(\frac{20}{2h}\right)^2} + \frac{20}{h}$$

$$= 2\sqrt{h^2 + \left(\frac{10}{h}\right)^2} + \frac{20}{h}$$

$$= 2\sqrt{h^2 + \frac{100}{h^2}} + \frac{20}{h}$$

$$= 2\sqrt{\frac{h^4 + 100}{h^2}}$$

$$= \frac{2}{h}\sqrt{h^4 + 100} + \frac{20}{h}$$

Perimeter =

$$2\sqrt{h^2 + \frac{100}{h^2}} + \frac{20}{h}$$

Quiz 5

Name:

Yesenia Gil

Perm Number:

5005403

- 1) If x is increased from 2 to $2 + h$, how much does $x^2 - x + 2$ increase? Your final answer should be in terms of h .

$$\frac{2^2 - 2 + 2}{4}$$

$$(2+h)^2 - (2+h) + 2$$

$$2 - h + 2$$

$$4 + 4h + h^2 - 4$$

$$4 + 3h + h^2 - 4$$

$$3h + h^2$$

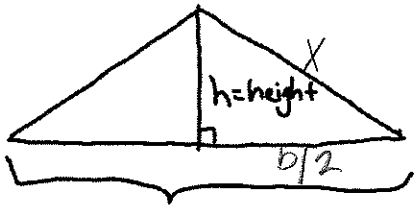
- 2) If $f(n) = n^2 - 1$, compute $\sum_{n=0}^4 f(n)$.

$$\begin{array}{r} 0-1 \quad 1-1 \quad 4-1 \quad 9-1 \quad 16-1 \\ = \quad = \quad = \quad = \quad = \\ -1 + 0 + 3 + 8 + 15 \\ \hline 10 \quad 25 \end{array}$$

$$\sum_{n=0}^4 f(n) =$$

25

- 3) The side of a roof is going to be built. Its shape is an isosceles triangle with base b and height h (figure below). The area of this triangle is 10m^2 . Express the perimeter in terms of the height.



$$b = \text{base} \quad x^2 = h^2 + \left(\frac{10}{h}\right)^2$$

$$A = 10\text{m}^2$$

$$A = \frac{bh}{2}$$

$$A = \frac{bh}{2}$$

$$P = 2\sqrt{h^2 + \left(\frac{10}{h}\right)^2} + \frac{20}{h}$$

$$\frac{20\text{m}^2}{h} = \frac{bh}{h}$$

$$b = \frac{20\text{m}^2}{h}$$

$$\frac{20\text{m}^2}{2h} = \frac{10\text{m}^2}{h}$$

Perimeter =

$$2\sqrt{h^2 + \left(\frac{10}{h}\right)^2} + \frac{20}{h}$$