

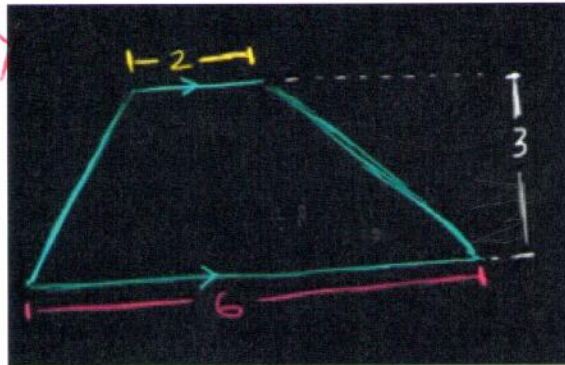
Simplifying Expressions and Polynomials Practice

- $(-8a^2 + 6a - 6) - (2a^2 - 6a + 8) = -6a^2 + 2$
- $(3x^2 - 2x - 2) - (-4x^2 - 5x - 5) = 7x^2 + 3x + 3$
- $(11x^2 - 7) - (7x^2 - 7) = 4x^2 + 14$
- $\frac{p^3q^6}{p^2q} = pq^5$
- $\frac{-15x^4}{3x^2} = -5x^2$
- $(-7x^8y^6)(3xy^2) = -21x^9y^8$
- $\left(\frac{2}{y^5}\right)^4 = \frac{16}{y^{20}}$
- $6x^3(2x^4 - x^2 + 3x + 9) = 12x^7 - 6x^5 + 18x^4 + 54x^3$
- $(a+8)(a-7) = a^2 + a - 56$
- $(2x+7)(4x-1) = 8x^2 + 26x - 7$
- $(x+2)(x^3 - 4x + 3) = x^4 - 4x^2 + 3x + 2x^3 - 8x + 6 = x^4 + 2x^3 - 4x^2 - 5x + 6$
- $(2a-4)(5a^2 - 4a - 1) = 10a^3 + 8a^2 - 2a - 20a^2 - 16a + 4 = 10a^3 - 12a^2 - 18a + 4$

Geometry and Polynomials

1. What is the definition of a trapezoid? Calculate the area of the trapezoid:

quadrilateral with exactly
1 pair of // sides,
called the base



2. Watch Khan academy video as a class:

https://www.khanacademy.org/math/geometry/basic-geometry/area_non_standard/v/area-of-a-trapezoid-1

$$A = \frac{2+6}{2} (3) = 4(3) = 12u^2$$

3. a. Suppose the two bases have lengths $(5x-4)$ and $(7x-2)$ and a height of 3. Now calculate the area of the trapezoid in terms of x .

$$A = \frac{5x-4 + 7x-2}{2} \cdot (3) = \frac{12x-6}{2} \cdot 3$$

- b. Evaluate when $x=8$ in.

$$= 18(8) - 9 = 135 \text{ in}^2$$

4. Suppose this trapezoid is in 3-dimensions, with a depth of 3 in. What is the volume of the trapezoid prism in cubic inches?

$$= (6x-3)(3) \\ = 18x-9$$

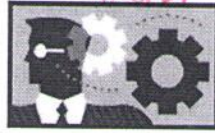
$$V = \text{Area of base} \cdot \text{depth}$$

$$= 135 \text{ in}^2 (3 \text{ in}) = 405 \text{ in}^3$$

Writing and Simplifying Polynomial Expressions Activity

2. Think of a number. Subtract 7. Multiply by 3. Add 30. Divide by 3. Subtract the original number. The result is always 3. Use polynomials to illustrate this number trick.

$$\frac{3(x-7)+30}{3} - x$$



Answer#2

$$= \frac{3x-21+30}{3} - x$$

$$= \frac{3x+9}{3} = \frac{3(x+3)}{3} - x = 3$$

5. Write a variable expression for the area of a square whose side is $x + 8$.

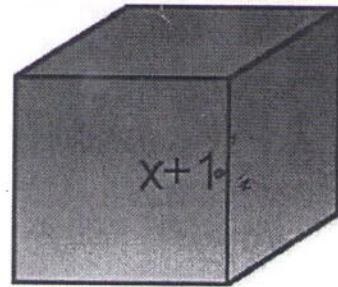
$$(x+8)(x+8) = x^2 + 16x + 64$$

Answer#5



3. The side of a cube is represented by $X + 1$. Find, in terms of X , the volume of the cube.

Answer#3



$$(x+1)(x+1)(x+1)$$

$$(x+1)(x^2+2x+1)$$

$$x^3+2x^2+x+x^2+2x+1$$

$$= x^3+3x^2+3x+1$$