

Math351

Practice Exam #01

1. Simplify the expressions.

a) $14 - 6$

b) $-12 - 3$

c) $-45 + 6$

2. Use the rule for the order of operations to simplify the expressions.

a) $6 + 12 \div 2 \cdot 2$

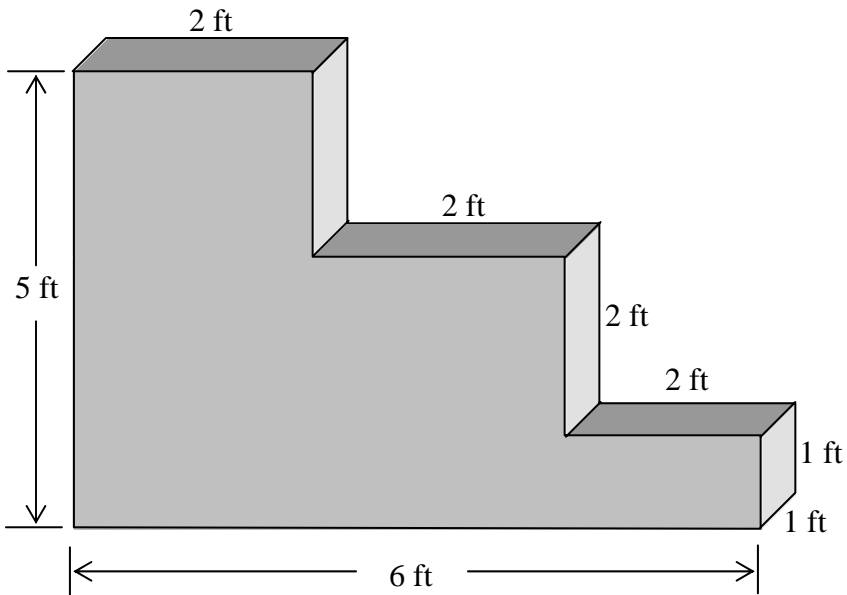
b) $3 \cdot 3^2 + 8 \div 4 - 2^2$

3. Simplify the expressions.

a) $\frac{-4^2 - 2^2}{-1-1}$

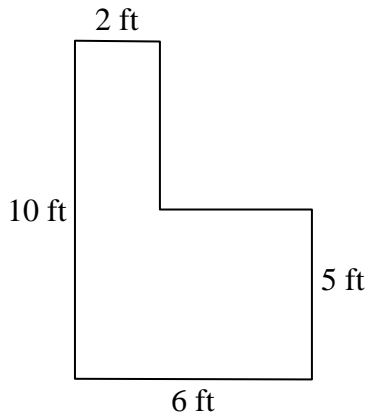
b) $\frac{(-2)^2 - 3^2}{2-3}$

4. Find the volume of the box below.

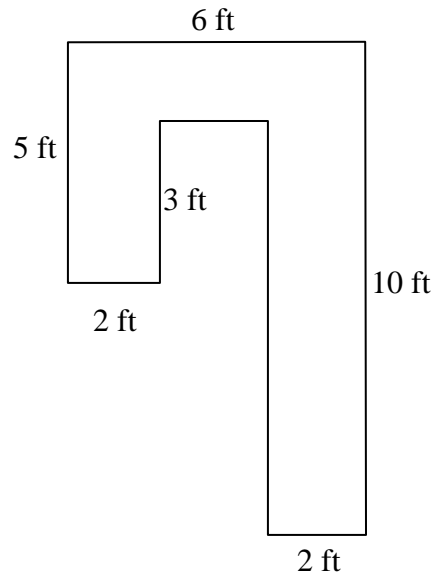


5. Find the following:

a) Find the **Perimeter** for the shape below.



b) Find the **Area** for the shape below.



6. Simplify as much as possible.

a) $-2^2 - |-2 - 1| + 2$

b) $5 + (-|-2| + 3)$

7. First, write out the mathematical expression. Then simplify the expression.

a) The difference between -5 and -4.

b) Subtract -3 from the quotient of -6 and 3.

8. Simplify the expressions.

a) $-3[(-2)^2 - 1]$

b) $-2[(4+3)^2 - 39]^2$

9. How many **4-ounce** glasses can you fill using five **12-ounce** bottles of soda?

10. By inspection, find a solution to each equation.

a) $-3 + x = 4$

b) $-3 \cdot x = -27$

c) $2 - x = 6$

11. Answer true or false.

a) The opposite of -3 is greater than $|4|$.

b) $-|-1| > |-2|$

c) $-75 < -76$

12. Simplify the expressions below.

a) $\frac{3}{2} - \frac{1}{6}$

b) $\frac{2}{3} - \frac{9}{6}$

c) $\frac{1}{3} + \frac{3}{4} - \frac{5}{6}$

13. Simplify the expressions below as much as possible.

a) $\frac{5}{2} \cdot \frac{3}{4} + \frac{1}{4}$

b) $\frac{2}{5} - \left| -\frac{4}{3} \right| - 2$

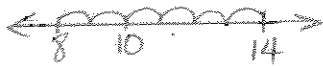
Math351

Practice Exam #01

1. Simplify the expressions.

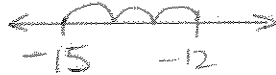
a) $14 - 6$

8



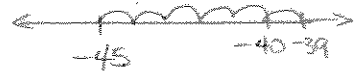
b) $-12 - 3$

-15



c) $-45 + 6$

-39



2. Use the rule for the order of operations to simplify the expressions.

a) $6 + 12 \div 2 \cdot 2$

$6 + 6 \cdot 2$

$6 + 12$

18

b) $3 \cdot 3^2 + 8 \div 4 - 2^2$

$3 \cdot 9 + 8 \div 4 - 4$

$27 + 8 \div 4 - 4$

$27 + 2 - 4$

$29 - 4$

25

3. Simplify the expressions.

a) $\frac{-4^2 - 2^2}{-1 - 1}$

$$\frac{-16 - 4}{-2}$$

$$\frac{-20}{-2}$$

$$\boxed{10}$$

b) $\frac{(-2)^2 - 3^2}{2 - 3}$

$$\frac{4 - 9}{-1}$$

$$\frac{-5}{-1}$$

$$\boxed{5}$$

4. Find the volume of the box below.

Diagram showing a composite figure composed of three rectangular prisms (I, II, and III) and their individual volume calculations.

Prism I: Dimensions are 2 ft by 2 ft by 2 ft. Volume calculation: $V_I = (2\text{ ft})(2\text{ ft})(2\text{ ft}) = 8\text{ ft}^3$. (Note: The handwritten calculation in the image is 4 ft^3 , which is incorrect.)

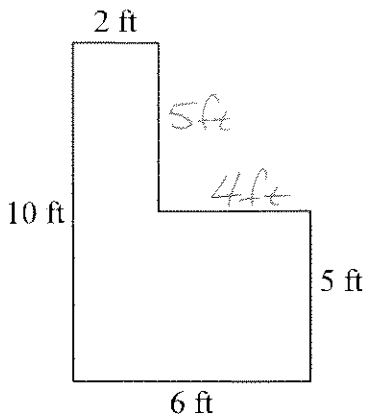
Prism II: Dimensions are 4 ft by 2 ft by 1 ft. Volume calculation: $V_{II} = (4\text{ ft})(2\text{ ft})(1\text{ ft}) = 8\text{ ft}^3$.

Prism III: Dimensions are 6 ft by 1 ft by 1 ft. Volume calculation: $V_{III} = (6\text{ ft})(1\text{ ft})(1\text{ ft}) = 6\text{ ft}^3$.

Total Volume: $V_{\text{Total}} = 8 + 8 + 6\text{ ft}^3 = 22\text{ ft}^3$. (Note: The handwritten calculation in the image is 18 ft^3 , which is incorrect.)

5. Find the following:

a) Find the **Perimeter** for the shape below.



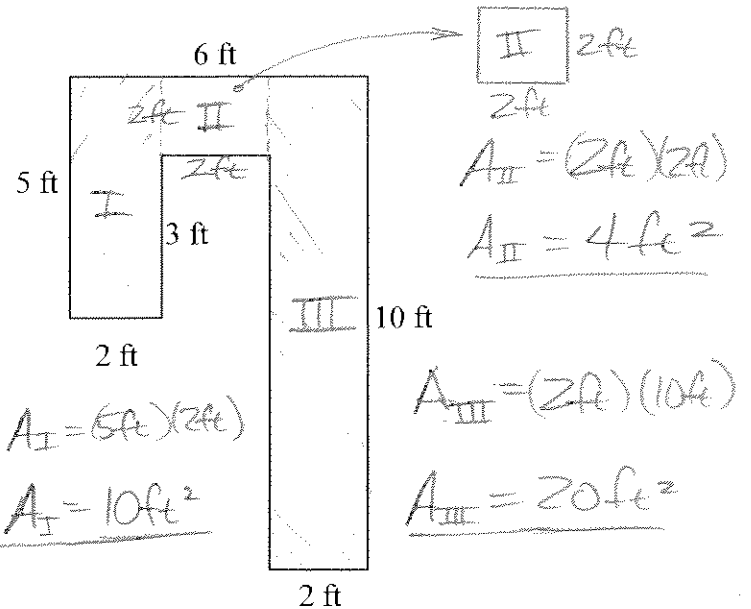
$$P = 10 + 6 + 5 + 4 + 5 + 2 \text{ ft}$$

$$P = 10 + 10 + 10 + 2 \text{ ft}$$

$$P = 30 + 2 \text{ ft}$$

$$P = 32 \text{ ft}$$

b) Find the **Area** for the shape below.



$$A_I = (5 \text{ ft}) (2 \text{ ft})$$

$$A_I = 10 \text{ ft}^2$$

$$A_{II} = (2 \text{ ft}) (2 \text{ ft})$$

$$A_{II} = 4 \text{ ft}^2$$

$$A_{III} = (2 \text{ ft}) (10 \text{ ft})$$

$$A_{III} = 20 \text{ ft}^2$$

$$A_{\text{Total}} = A_I + A_{II} + A_{III}$$

$$= 10 \text{ ft}^2 + 4 \text{ ft}^2 + 20 \text{ ft}^2$$

$$= 34 \text{ ft}^2$$

6. Simplify as much as possible.

a) $-2^2 - |-2 - 1| + 2$

$$-4 - |-2 - 1| + 2$$

$$-4 - |-3| + 2$$

$$-4 - 3 + 2$$

$$-7 + 2$$

$$-5$$

b) $5 + (-|-2| + 3)$

$$5 + (-2 + 3)$$

$$5 + (1)$$

$$5 + 1$$

$$6$$

7. First, write out the mathematical expression. Then simplify the expression.

a) The difference between -5 and -4.

$$\boxed{-5 - (-4)}$$

$$-5 + 4$$

$$\boxed{-1}$$

b) Subtract -3 from the quotient of -6 and 3.

$$\boxed{(-6 \div 3) - (-3)}$$

$$(-6 \div 3) - (-3)$$

$$-2 - (-3)$$

$$-2 + 3$$

$$\boxed{1}$$

8. Simplify the expressions.

Note: Use the rule for order of operations!

a) $-3[(-2)^2 - 1]$

$$-3[(-2)^2 - 1]$$

$$-3[4 - 1]$$

$$-3[3]$$

$$\boxed{-9}$$

b) $-2[(4+3)^2 - 39]^2$

$$-2[(4+3)^2 - 39]^2$$

$$-2[7^2 - 39]^2$$

$$-2[49 - 39]^2$$

$$-2[10]^2$$

$$-2 \cdot 100$$

$$\boxed{-200}$$

9. How many **4-ounce** glasses can you fill using five **12-ounce** bottles of soda?

$$5 \times 12 \text{ ounces} = 60 \text{ ounces total}$$

$$\frac{60}{4} = \boxed{15 \text{ glasses}}$$

10. By inspection, find a solution to each equation.

a) $-3 + x = 4$

$$\boxed{x = 7}$$

b) $-3 \cdot x = -27$

$$\boxed{x = 9}$$

$$-3 \cdot 9 = -27$$

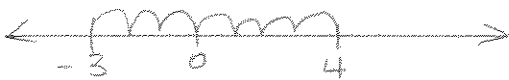
c) $2 - x = 6$

$$\boxed{x = -4}$$

$$2 - (-4)$$

$$2 + 4$$

$$\underline{\underline{6}}$$



11. Answer true or false.

a) The opposite of -3 is greater than $|4|$.

$$\begin{array}{l} -(-3) \\ 3 \end{array}$$

$$|4| = 4$$

$$3 > 4$$

$$\boxed{\text{False}}$$

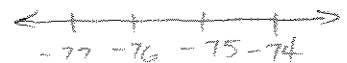
b) $-|-1| > |-2|$

$$-1 > 2$$

$$\boxed{\text{False}}$$

c) $-75 < -76$

$$\boxed{\text{False}}$$



12. Simplify the expressions below.

a) $\frac{3}{2} - \frac{1}{6}$ LCD=6

$$\frac{3}{2} \left(\frac{3}{3} \right) - \frac{1}{6}$$

$$\frac{9}{6} - \frac{1}{6}$$

$$\frac{9-1}{6}$$

$$\frac{8}{6}$$

$$\boxed{\frac{4}{3}}$$

b) $\frac{2}{3} - \frac{9}{6}$ LCD=6

$$\frac{2}{3} \left(\frac{2}{2} \right) - \frac{9}{6}$$

$$\frac{4}{6} - \frac{9}{6}$$

$$\frac{4-9}{6}$$

$$\boxed{\frac{-5}{6}}$$

-OR-

$$\boxed{-\frac{5}{6}}$$

c) $\frac{1}{3} + \frac{3}{4} - \frac{5}{6}$ LCD=12

$$\frac{1}{3} \left(\frac{4}{4} \right) + \frac{3}{4} \left(\frac{3}{3} \right) - \frac{5}{6} \left(\frac{2}{2} \right)$$

$$\frac{4}{12} + \frac{9}{12} - \frac{10}{12}$$

$$\frac{4+9-10}{12}$$

$$\frac{3}{12}$$

$$\boxed{\frac{1}{4}}$$

13. Simplify the expressions below as much as possible.

a) $\frac{5}{2} \cdot \frac{3}{4} + \frac{1}{4}$

$$\frac{15}{8} + \frac{1}{4}$$

LCD=8

$$\frac{15}{8} + \frac{1}{4} \left(\frac{2}{2} \right)$$

$$\frac{15}{8} + \frac{2}{8}$$

$$\frac{15+2}{8}$$

$$\boxed{\frac{17}{8}}$$

b) $\frac{2}{5} - \left| \frac{4}{3} \right| - 2$

$$\frac{2}{5} - \frac{4}{3} - \frac{2}{1}$$

LCD=15

$$\frac{2}{5} \left(\frac{3}{3} \right) - \frac{4}{3} \left(\frac{5}{5} \right) - \frac{2}{1} \left(\frac{15}{15} \right)$$

$$\frac{6}{15} - \frac{20}{15} - \frac{30}{15}$$

$$\frac{6-20-30}{15}$$

$$\frac{-14-30}{15}$$

$$\boxed{\frac{-44}{15}}$$

-OR-

$$\boxed{-\frac{44}{15}}$$