

# Where Can You See the World's Biggest Rock Group?

Evaluate each formula below for the given values of the variables. Find each answer at the bottom of the page and cross out the letters above it. When you finish, the answer to the title question will remain.

①  $V = hw^2$   
 where  $V$  is the volume of a square prism with a square base of side  $w$  and with height  $h$ . Find  $V$  if  $h = 8$  cm,  $w = 6$  cm.  
 *$V = 8(6)^2 = 8(36)$*   
 288 cm<sup>3</sup>

②  $A = \frac{1}{2}h(a + b)$   
 where  $A$  is the area of a trapezoid with height  $h$ , and bases of lengths  $a$  and  $b$ . Find  $A$  if  $h = 12$  cm,  $a = 24$  cm,  $b = 18$  cm.  
 270 cm<sup>2</sup>

③  $V = C \left(1 - \frac{N}{n}\right)$   
 where  $V$  is the value of an asset, depreciated over  $N$  years, at the end of  $n$  years;  $C$  is the original cost of the asset. Find  $V$  if  $C = \$800$ ,  $n = 5$  years,  $N = 20$  years.  
 \$ 640

④  $h = rt - 4.9t^2$   
 where  $h$  is the height in meters that an object will reach in  $t$  seconds when it is projected upward with an initial speed of  $r$  meters per second. Find  $h$  if  $r = 75$  m/sec,  $t = 10$  sec.  
 175 m

⑤  $w = 0.8e^3$   
 where  $w$  is the approximate weight in grams of an ice cube with edges of length  $e$  centimeters. Find  $w$  if  $e = 5$  cm.  
 9 g

⑥  $R = \frac{rs}{rs + st + rt}$   
 where  $R$  is the total resistance of three resistances  $r$ ,  $s$ , and  $t$ , in parallel. Find  $R$  if  $r = 4$  ohms,  $s = 10$  ohms,  $t = 15$  ohms.  
 0.15 ohms

⑦  $V = \frac{1}{3}\pi r^2 h$   
 where  $V$  is the volume of a right circular cone with a base of radius  $r$  and with height  $h$ . Find  $V$  if  $r = 6$  cm,  $h = 10$  cm. Use 3.14 as the value of  $\pi$ .  
 125.66 cm<sup>3</sup>

GE	MT	TA	OP	RU	ST	IN	SH	MO	FI	VE	RE
260	4.5	288	376.8	112	600	2.4	341.5	275	252	100	628


OBJECTIVE 2-a: To evaluate formulas.


# ACTIVITY 9 - Equivalent Expressions


Name \_\_\_\_\_


5x	9x	7x	9x	2x	5x	9x	7x	9x	2x
15x	5x	x	2x	8x	15x	5x	x	2x	8x
18x	0	11x	0	13x	18x	0	13x	0	13x
15x	9x	x	6x	8x	15x	9x	x	6x	8x
9x	3x	12x	3x	6x	9x	3x	12x	3x	6x
5x	9x	7x	9x	2x	5x	9x	7x	9x	2x
15x	5x	x	2x	8x	15x	5x	x	2x	8x
18x	0	11x	0	13x	18x	0	13x	0	13x
15x	9x	x	6x	8x	15x	9x	x	6x	8x
9x	3x	12x	3x	6x	9x	3x	12x	3x	6x


Add and subtract.


  $2x + 3x$


  $8x - 6x$


  $5x + x$


  $2x + 4x + 3x$


  $12x - x$


  $x + x + x$


  $8x + 7x$


  $9x - x - 4x$


  $12x + 3x - 7x$


  $6x - 4x + 10x$

  $6x + 6x + 6x$

  $3x - 2x + 6x$

  $13x + x - x$

  $2x + 5x - 6x$

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

# Where Can You See the World's Biggest Rock Group?

Evaluate each formula below for the given values of the variables. Find each answer at the bottom of the page and cross out the letters above it. When you finish, the answer to the title question will remain.

①  $V = hw^2$   
where  $V$  is the volume of a square prism with a square base of side  $w$  and with height  $h$ . Find  $V$  if  $h = 8 \text{ cm}$ ,  $w = 6 \text{ cm}$ .  
 $V = (8)(6)^2 = 8 \cdot 36 = 288 \text{ cm}^3$

②  $A = \frac{1}{2}h(a+b)$   
where  $A$  is the area of a trapezoid with height  $h$ , and bases of lengths  $a$  and  $b$ . Find  $A$  if  $h = 12 \text{ cm}$ ,  $a = 24 \text{ cm}$ ,  $b = 18 \text{ cm}$ .  
 $A = \frac{1}{2}(12)(24+18) = 6(42) = 252 \text{ cm}^2$

③  $V = C\left(1 - \frac{N}{n}\right)$   
where  $V$  is the value of an asset, depreciated over  $N$  years, at the end of  $n$  years;  $C$  is the original cost of the asset. Find  $V$  if  $C = \$800$ ,  $n = 5$  years,  $N = 20$  years.  
 $V = 800\left(1 - \frac{5}{20}\right) = 800\left(\frac{3}{4}\right) = 600$

④  $h = rt - 4.9t^2$   
where  $h$  is the height in meters that an object will reach in  $t$  seconds when it is projected upward with an initial speed of  $r$  meters per second. Find  $h$  if  $r = 75 \text{ m/sec}$ ,  $t = 10 \text{ sec}$ .  
 $h = 75(10) - 4.9(10)^2 = 750 - 490 = 260 \text{ m}$

⑤  $w = 0.8e^g$   
where  $w$  is the approximate weight in grams of an ice cube with edges of length  $e$  centimeters. Find  $w$  if  $e = 5 \text{ cm}$ .  
 $w = 0.8(5)^3 = 0.8(125) = 100 \text{ g}$

⑥  $R = \frac{rst}{rs + st + rt}$   
where  $R$  is the total resistance of three resistances  $r$ ,  $s$ , and  $t$ , in parallel. Find  $R$  if  $r = 4 \text{ ohms}$ ,  $s = 10 \text{ ohms}$ ,  $t = 15 \text{ ohms}$ .  
 $R = \frac{4 \cdot 10 \cdot 15}{4 \cdot 10 + 10 \cdot 15 + 4 \cdot 15} = \frac{600}{40 + 150 + 60} = \frac{600}{250} = 2.4$

⑦  $V = \frac{1}{3}\pi r^2 h$   
where  $V$  is the volume of a right circular cone with a base of radius  $r$  and with height  $h$ . Find  $V$  if  $r = 6 \text{ cm}$ ,  $h = 10 \text{ cm}$ . Use 3.14 as the value of  $\pi$ .  
 $V = \frac{1}{3}\pi(6)^2(10) = \frac{1}{3}(3.14)(36)(10) = 376.8$

GE	MT	TA	OP	RU	ST	IN	SH	MO	FI	VE	RE
260	4.5	288	376.8	112	608	2.4	341.5	275	252	100	628

OBJECTIVE 2-a: To evaluate formulas.

$\frac{1}{3} \times \frac{3}{14} = \frac{3}{42} = \frac{1}{14}$   
 $\frac{3}{14} \times \frac{3}{14} = \frac{9}{196}$   
 $\frac{1}{14} \times \frac{360}{1} = \frac{360}{14} = 25 \frac{5}{7}$   
 $\frac{1}{14} \times \frac{360}{1} = \frac{360}{14} = 25 \frac{5}{7}$


288  
x 8  
4

# ACTIVITY 9 - Equivalent Expressions


Name \_\_\_\_\_

5x	4x	7x	4x	2x	5x	4x	7x	4x	2x
15x	5x	x	2x	8x	15x	5x	x	2x	8x
18x	0	11x	0	13x	18x	0	11x	0	13x
15x	9x	x	6x	8x	15x	9x	x	6x	8x
9x	3x	12x	3x	6x	9x	3x	12x	3x	6x
5x	4x	7x	4x	2x	5x	4x	7x	4x	2x
15x	5x	x	2x	8x	15x	5x	x	2x	8x
18x	0	11x	0	13x	18x	0	11x	0	13x
15x	9x	x	6x	8x	15x	9x	x	6x	8x
9x	3x	12x	3x	6x	9x	3x	12x	3x	6x


Add and subtract.

  $2x + 3x$


$5x$

  $8x - 6x$


$2x$

  $5x + x$


$6x$

  $2x + 4x + 3x$


$9x$

  $12x - x$


$11x$

  $x + x + x$


$3x$

  $8x + 7x$


$15x$

  $9x - x - 4x$


$4x$

  $12x + 3x - 7x$


$8x$

  $6x - 4x + 10x$


$12x$

  $6x + 6x + 6x$


$18x$

  $3x - 2x + 6x$


$7x$

  $13x + x - x$

$13x$

  $2x + 5x - 6x$

$x$

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

$0$