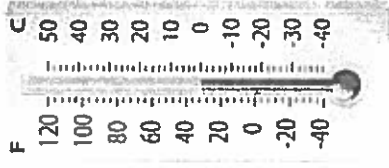


SHOW ALL STEPS!!!



1. Express each as an integer:

- a) a decrease of 16°C  $-16$
- b) an increase of 3°C  $+3$
- c) a drop of 50 feet  $-50$
- d) earning \$25  $+25$
- e) spending \$500  $-500$
- f) a rise of 30 metres  $+30$

2. Simplify using integer rules.

- a)  $5 - 3 = 2$
- b)  $7 - 6 = 1$
- c)  $2 - 11 = -9$
- d)  $4 + (+2) = 6$
- e)  $(-2) - (-9) = 7$
- f)  $(+4) - (+5) - (-3) = 2$
- g)  $(-4)(-6) = 24$
- h)  $(+6)(-2) = -12$
- i)  $(-3)(-8) = 24$
- j)  $(4)^2 = 16$
- k)  $(-5)^2 = 25$
- l)  $(-4)(-1)(+7) = 28$
- m)  $(-1)^5 = -1$
- n)  $(+25) \div (+5) = 5$
- o)  $(-49) \div (-7) = 7$
- p)  $\frac{-64}{8} = -8$

3. Use BEDMAS to evaluate.

- a)  $12 \div 6 + 3(5) = 2 + 15 = 17$
- b)  $2(5 - 6) + 5 = 2(-1) + 5 = -2 + 5 = 3$
- c)  $4^2 - 4(3) + 12 \div 4 = 16 - 12 + 3 = 7$
- d)  $-2(-3) - 6 \div (-3) = 6 - (-2) = 6 + 2 = 8$
- e)  $4(5 - 3)^2 = 4(2)^2 = 4(4) = 16$
- f)  $6(-10) + \frac{15}{-3} = -60 + (-5) = -65$

4. Evaluate if  $x = -2$  and  $y = 3$ .

- a)  $4xy = 4(-2)(3) = -24$
- b)  $2(x - y) = 2(-2 - 3) = 2(-5) = -10$
- c)  $(y - x)^2 = (3 - (-2))^2 = (3 + 2)^2 = 5^2 = 25$

5. Calculate the length of the missing side, using Pythagorean Theorem. Answer to 1 decimal place.

a)  $c^2 = 4.8^2 + 7.2^2 = 23.04 + 51.84 = 74.88$   
 $c = 8.7 \text{ cm}$

b)  $a^2 = 9.2^2 - 5.7^2 = 84.64 - 32.49 = 52.15$   
 $a = 7.2 \text{ cm}$

c)  $c^2 = 2.0^2 + 1.5^2 = 4 + 2.25 = 6.25$   
 $c = 2.5 \text{ cm}$

d)  $a^2 = 6.4^2 - 5.7^2 = 40.96 - 32.49 = 8.47$   
 $a = 2.9 \text{ cm}$

6. Calculate the perimeter AND area of each shape. Formula, Substitution, Answer, Units!!!

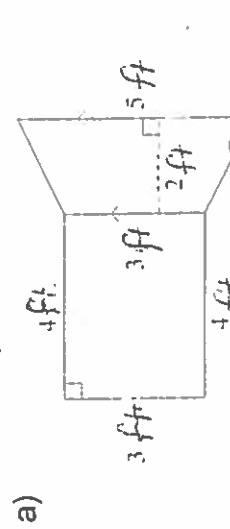
Round answers to 1 decimal place.

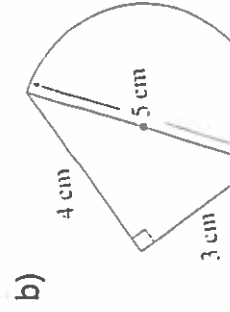
a)  $P = a + b + c + d = 2.0 + 4.5 + 2.0 + 4.5 = 13 \text{ cm}$   
 $A = lw = 4.5 \times 2 = 9 \text{ cm}^2$

b)  $P = a + b + c + d = 4.5 + 10 + 4.5 + 10 = 29 \text{ cm}$   
 $A = bh = 4.5(10) = 45 \text{ cm}^2$

c)  $P = s + s + \pi d = 3 + 3 + 3.14(3) = 15.4 \text{ cm}$   
 $A = lw = 3 \times 3 = 9 \text{ cm}^2$   
 $A = \pi r^2 = 3.14(1.5)^2 = 7.065 \text{ cm}^2$   
 Total =  $9 + 7.065 = 16.1 \text{ cm}^2$

7. Calculate the area of each figure. Formula, Substitution, Answer, Units!!! Round answers to 1 decimal place.

a)    
 $A = lw = 3 \times 3 = 9 \text{ ft}^2$    
 $A_{\text{triangle}} = \frac{bh}{2} = \frac{3 \times 4}{2} = 6 \text{ ft}^2$    
 Total =  $9 + 6 = 15 \text{ ft}^2$

b)    
 $A = \frac{bh}{2} = \frac{3 \times 4}{2} = 6 \text{ cm}^2$

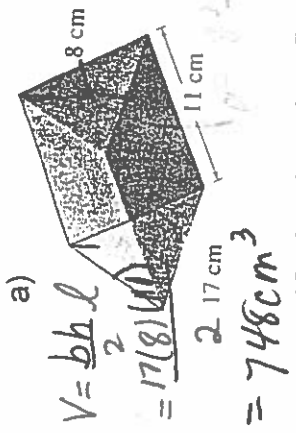
$A = \frac{\pi r^2}{2}$    
 $= \frac{3.14 \times (2.5)^2}{2}$    
 $= 9.8125$    
 Total =  $6 + 9.8125 = 15.8 \text{ cm}^2$

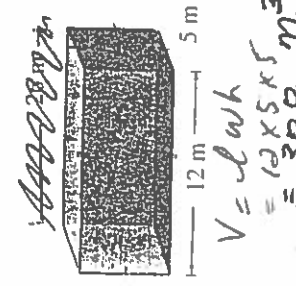
8. If the shape in #7a was a floor that was to be tiled and the tiling costs \$2.29 per square foot, what is the cost to tile the room, including 13% tax.

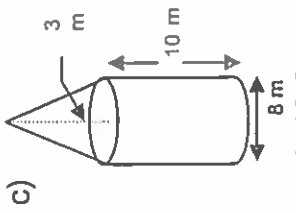
Cost =  $20 \times 2.29 = 45.80$    
 $\times 1.13 = 51.75$



9. Calculate the volume of each shape. Round answers to 1 decimal place.

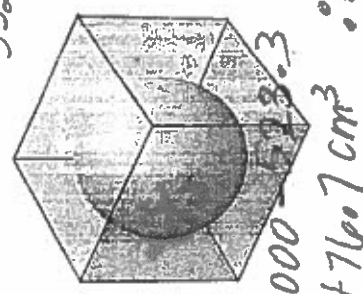
a)    
 $V = lwh = 17 \times 8 \times 11 = 1496 \text{ cm}^3$

b)    
 $V = lwh = 12 \times 5 \times 5 = 300 \text{ m}^3$

c)    
 $V = \pi r^2 h = 3.14 \times (3)^2 \times 10 = 282.6 \text{ m}^3$

$V = \pi r^2 h$    
 $= 3.14 \times (4)^2 \times (3) = 150.72$    
 Total =  $150.72 + 50.24 = 200.96$

10. A sphere just fits inside a cube with the edge length 10.0 cm.



a) Calculate the volume of the sphere.

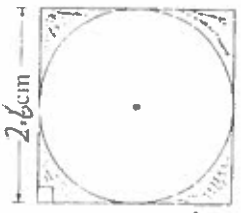
$V = \frac{4}{3} \pi r^3 = \frac{4}{3} \times 3.14 \times (5)^3 = 523.3 \text{ cm}^3$

b) Calculate the volume of empty space inside the box.

$V_{\text{box}} = lwh = 10 \times 10 \times 10 = 1000 \text{ cm}^3$    
 Space =  $1000 - 523.3 = 476.7 \text{ cm}^3$

11. Calculate the area of the shaded region. Round answer to one decimal place.

$A_{\square} = lw = 2.6 \times 2.6 = 6.76 \text{ cm}^2$    
 $A_{\circ} = \pi r^2 = 3.14 \times (1.3)^2 = 5.3066 \text{ cm}^2$    
 Shaded Area =  $6.76 - 5.3066 = 1.4534 \text{ cm}^2$



12. Trevor has 48 metres of fencing. Determine the length and width of the largest rectangular pen he can make.  $48 \div 4 = 12$   $\therefore$  he can make a  $12 \times 12$  m pen

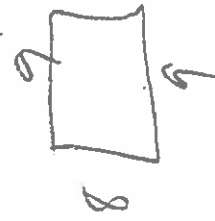


c) Calculate the area of the pen.

$A = lw = 12 \times 12 = 144 \text{ m}^2$

13. Emma has 35 metre sticks. Determine the length and width of the rectangle that will have the maximum area.

$35 \div 4 = 8.75 \rightarrow$  choose 8 & 9 (can't break stick)



$\therefore$  she should use a  $8 \times 9$  m rectangle

