

HOMEWORK Solutions...

Review - Prior Knowledge for Section 6.1.pdf



BLACKLINE MASTER 6.9: SOLUTIONS

Order of Operations

1. $5^2 \times 3 - (84 - 37)$
 $= 25 \times 3 - 47$
 $= 75 - 47$
 $= 28$
2. $(22 - 25)^3 \div [(13 - 7) + 3]$
 $= (-3)^3 \div (6 + 3)$
 $= -27 \div 9$
 $= -3$
3. $\left(\frac{36}{9}\right)^2 \times 2 - 15 \div (-3)$
 $= 4^2 \times 2 - 15 \div (-3)$
 $= 16 \times 2 - (-5)$
 $= 32 + 5$
 $= 37$
4. $(-4)^3 + (5 - 11)^2 \div 12 + 20$
 $= -64 + (-6)^2 \div 12 + 20$
 $= -64 + 36 \div 12 + 20$
 $= -64 + 3 + 20$
 $= -41$

Finding the Area of Composite Figures

5. $A = \ell w$
 $A = (10.5)(4.5)$
 $A = 47.25 \text{ in}^2$
6. $A = wh$
 $A = (12)(18)$
 $A = 216 \text{ cm}^2$
7. $A = \pi r^2$
 $A = \pi(3.5)^2$
 $A \approx 38.48 \text{ yd}^2$
8. $A = \frac{1}{2}bh$
 $A = \frac{1}{2}(5)(2.9)$
 $A = 7.25 \text{ ft}^2$

Working with Formulas

9. $4\pi r^2$ ($r = 3.4$)
 $= 4\pi(3.4)^2$
 ≈ 145.27
10. $\frac{1}{3}\pi r^2 h$ ($r = 5.2, h = 8$)
 $= \frac{1}{3}\pi(5.2)^2(8)$
 ≈ 226.53
11. $\pi rs + \pi r^2$ ($r = 3, s = 4.3$)
 $= \pi(3)(4.3) + \pi(3)^2$
 $\approx 40.53 + 28.27$
 ≈ 68.8
12. $2\pi r^2 + 2\pi rh$ ($r = 6.7, h = 12.3$)
 $= 2\pi(6.7)^2 + 2\pi(6.7)(12.3)$
 $\approx 282.05 + 517.80$
 ≈ 799.85

Converting Measurements Within and Between the SI and Imperial Systems

13. 4.56 km; metres
 $1 \text{ km} = 1000 \text{ m}$
 $4.56 \text{ km} = 4560 \text{ m}$
14. 56.64 yd; inches (1 yard = 36 inches)
 $1 \text{ yard} = 36 \text{ inches}$
 $56.64 \text{ yards} = 2039.04 \text{ inches}$
15. 27.2 feet; cm (1 foot \approx 30.48 cm)
 $1 \text{ foot} \approx 30.48 \text{ cm}$
 $27.2 \text{ feet} \approx 829.056 \text{ cm}$
16. 89.2 miles; km (1 mile = 1.609344 km)
 $1 \text{ mile} = 1.609344 \text{ km}$
 $89.2 \text{ miles} \approx 143.55 \text{ km}$

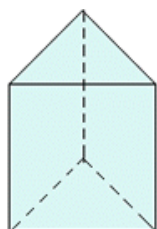
Surface Area

Surface area is the total area of all of the faces of the object.

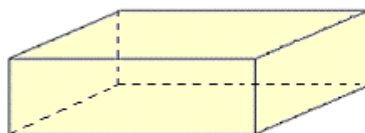
Steps need to find Surface area are...

- 1. Draw all of the faces with dimensions displayed on them.**
- 2. Find the area of each face.**
- 3. Then add up the areas of all of the faces.**

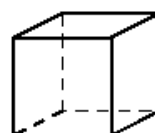
Regular Polygonal Prism



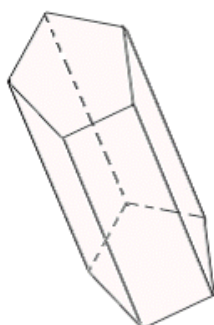
Triangular Prism



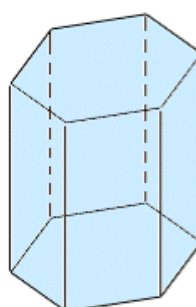
Rectangular Prism



Cube

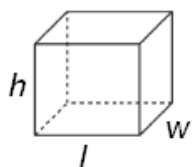


Pentagonal Prism

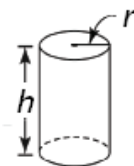


Hexagonal Prism

Activate Prior Learning:
**Surface Areas of Right Prisms
and Cylinders**



$$SA = 2wl + 2hl + 2hw$$



$$SA = 2\pi r^2 + 2\pi rh$$

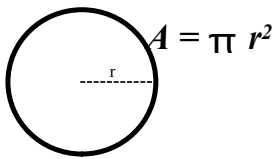


Area Formulas

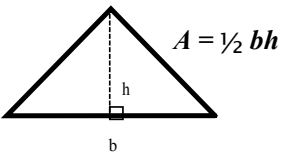
Rectangle or Square

$$A = bh$$

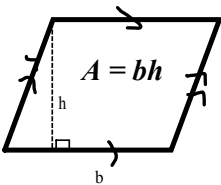
Circle



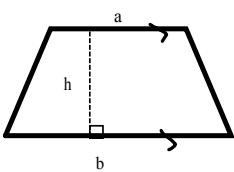
Triangle



Parallelogram or Rhombus

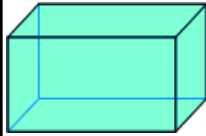


Trapezoid



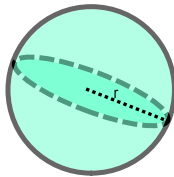
$$A = \frac{1}{2} h(a + b)$$

Surface Area Formulas



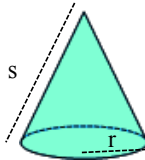
Rectangular Prism

SA = Area of all 6 rectangles added together



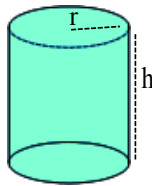
Sphere

$$SA = 4\pi r^2$$



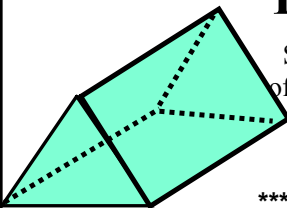
Cone

$$SA = \pi r^2 + \pi rs$$



Cylinder

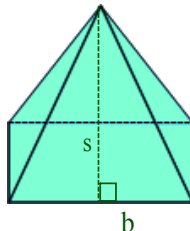
$$SA = 2\pi r^2 + 2\pi rh$$



Triangular Prism

SA = Area of the three Rectangle Sides + Area of two Triangle sides

****not all three rectangles have to be the same*

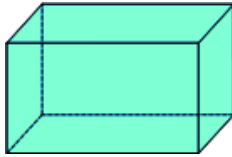


Pyramid

SA = Area of the base + all triangular faces

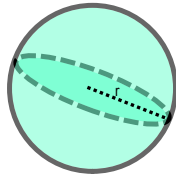
Remember...

Surface Area Formulas



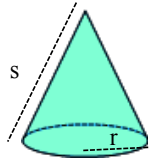
Rectangular Prism

SA = Area of all 6 rectangles added together



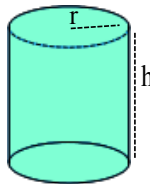
Sphere

$$SA = 4\pi r^2$$



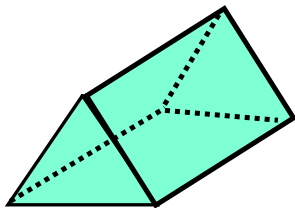
Cone

$$SA = \pi r^2 + \pi r s$$



Cylinder

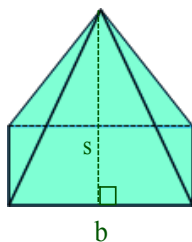
$$SA = 2\pi r^2 + 2\pi r h$$



Triangular Prism

SA = Area of the three Rectangle Sides
+ Area of two Triangle sides

*** remember not all three rectangles have to be the same

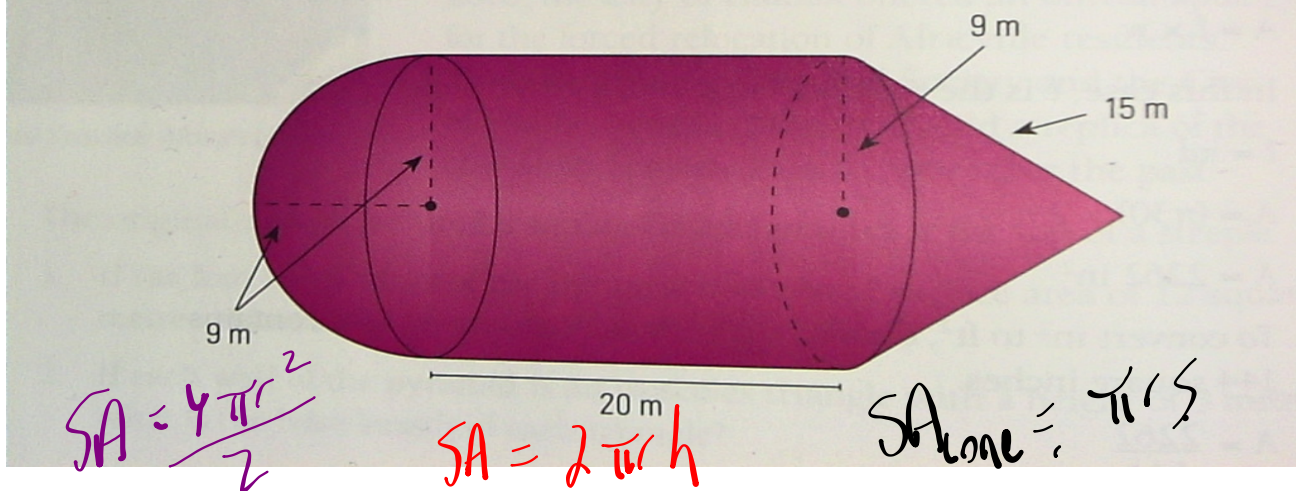


Pyramid

SA = Area of the base + Area of the lateral triangles

DESIGNING OBJECTS USING PYRAMIDS AND CYLINDERS

Rhashan has been contracted by a company to design a large balloon for the Holiday Parade of Lights in Halifax, NS. He makes a sketch of his design, as shown below.



Surface area of hemisphere = $\frac{1}{2}(4\pi r^2)$

Surface area = $\frac{1}{2}(4)(\pi)(9^2)$

Surface area $\approx 508.94 \text{ m}^2$

Surface area of outside of cylinder = $2\pi rh$

Surface area = $2\pi(9)(20)$

Surface area $\approx 1130.97 \text{ m}^2$

Surface area of lateral face of cone = πrs

Surface area = $\pi(9)(15)$

Surface area $\approx 424.12 \text{ m}^2$

Add to determine the total surface area.

$508.94 + 1130.97 + 424.12 = 2064.03 \text{ m}^2$

The total surface area of the balloon is 2064.03 m^2 .

HOMEWORK...

 6.1 Worksheet - Surface Area of Prisms, Pyramids and Cylinders.pdf

Do #2b, 3b, 6bc, 7a, 8, 11

 6.2 Worksheet - Surface Area of Cones_Spheres.docx

Do #3, 5ac, 7a, 10

Attachments

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6.1 Worksheet - Surface Area of Prisms, Pyramids and Cylinders.pdf

6.2 Worksheet - Surface Area of Cones_Spheres.docx