Name: _____ Per: ____

Determining Volume Part 2

Volume of Spheres

$$V = \frac{4\pi r^3}{3}$$

Dilating Length, Area & Volume by *k*

Lengths	Area	Volume
$NewLength = Length(k)$ *Multiply by the k-value.*	$NewArea = Area(k^2)$ *Multiply by the k-value **twice**.*	$NewVolume = Volume(k^3)$ *Multiply by the k-value **three times**.*

Evaluate. For cylinders, cones and spheres, leave your answer in terms of pi.

1. Determine the volume of a cylinder that has a height of 5 in and a radius of 1 in.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 4}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	$V(k^3) =$

2. Determine the volume of a square pyramid that has a base length of 6 in, a height of 4 in and ~~a slant height of 5 in.~~

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 2}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	$V(k^3) =$

3. Determine the volume of a sphere that has a radius of 3 in.

	If you dilate each part by $\boldsymbol{k = 2}$*, what will the dilated volume be?*
	$V(k^3) =$

4. Determine the volume of a cone that has a radius of 2 in, a height of 3 in and ~~a slant height of 4 in.~~

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 5}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	$V(k^3) =$

5. Determine the volume of a square prism that has a base length of 4 cm and a height of 5 cm.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 4}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

6. Determine the volume of sphere that has a radius of 30 cm.

	If you dilate each part by $\boldsymbol{k = 3}$*, what will the dilated volume be?*

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7. Determine the volume of a rectangular prism that has a base length of 5cm, a base height of 2cm and a height of 3cm.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 4}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

8. Determine the volume of a cone that has a radius of 3 cm, a slant height of 6 cm and a height of 5 cm.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 3}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

9. Determine the volume of a cylinder that has a radius of 2 in and a height of 10 in.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 5}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

10. Determine the volume of a sphere that has a radius of 9 in.

	If you dilate each part by $\boldsymbol{k = 2}$*, what will the dilated volume be?*

11. Determine the volume of a square pyramid that has a base length of 2 in, a height of 3 in and a slant height of 4 in.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 3}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

12. Determine the volume of a cone that has a height of 2 in, a slant height of 6 in and a radius of 6 in.

Step 1: Base Area	*If you dilate each part by* $\boldsymbol{k = 2}$*, what will the dilated volume be?*
Step 2: Height	
Step 3: Volume	

Determining Volume Part 2 Answers

1. $V = 5\pi\ in^3$; *Dilated* $V = 320\pi\ in^3$	2. $V = 48\ in^3$; *Dilated* $V = 384\ in^3$	3. $V = 36\pi\ in^3$; *Dilated* $V = 288\pi\ in^3$	4. $V = 4\pi\ in^3$; *Dilated* $V = 500\pi\ in^3$	5. $V = 80\ cm^3$; *Dilated* $V = 5120\ cm^3$	6. $V = 36000\pi\ cm^3$; *Dilated* $V = 972{,}000\pi\ cm^3$
7. $V = 30\ cm^3$; *Dilated* $V = 1920\ cm^3$	8. $V = 15\pi\ cm^3$; *Dilated* $V = 405\pi\ cm^3$	9. $V = 40\pi\ in^3$; *Dilated* $V = 5000\pi\ in^3$	10. $V = 972\pi\ in^3$; *Dilated* $V = 7776\pi\ in^3$	11. $V = 4\ in^3$; *Dilated* $V = 108\ in^3$	12. $V = 24\pi\ in^3$; *Dilated* $V = 192\pi\ in^3$