

MTH 263 Practice Test #1

SPRING 1999

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Name _____

1. πa^2 .

2. $2a^2 + \frac{\pi a^2}{4}$

3. 4

4. $\sqrt{35}$.

5. $\left\langle \frac{1}{\sqrt{35}}, \frac{3}{\sqrt{35}}, \frac{5}{\sqrt{35}} \right\rangle$.

6. $\left\langle \frac{1}{\sqrt{5}}, \frac{2}{\sqrt{5}} \right\rangle$

7. $\cos^{-1}\left(\frac{2}{\sqrt{5}}\right)$.

8. ~

(a) $\text{proj}_{\vec{v}} \vec{u} = \left\langle \frac{8}{5}, \frac{6}{5} \right\rangle$

(b) $\text{orth}_{\vec{v}} \vec{u} = \left\langle -\frac{3}{5}, \frac{4}{5} \right\rangle$

9. See Solutions.

10. See Solutions

11. ~

(a) $\|\vec{v}\| = \sqrt{61}$

(b) $\|3\vec{v} - \vec{u}\| = 6\sqrt{17}$

12. $\theta = 0$.

13. ~

(a) $\text{comp}_u(\vec{v}) = \frac{1}{\sqrt{14}}$

(b) $\text{proj}_u(\vec{v}) = \left\langle \frac{3}{14}, -\frac{1}{14}, \frac{1}{7} \right\rangle$.

$$(c) \text{ orth}_u(\vec{v}) = \left\langle \frac{53}{14}, \frac{15}{14}, -\frac{36}{7} \right\rangle$$

$$14. \vec{a} \times \vec{b} = -28\vec{i} + 16\vec{j} + 20\vec{k}$$

$$15. 24$$

$$16. 17$$