

14. C: $SA = 2\pi r^2 + 2\pi rh \approx$
 $2(3.14)(3^2) + 2(3.14)(3)(5) =$
 $56.52 + 94.2 = 150.72 \text{ cm}^2$
15. E: "roof": $SA = 2(7)(5) = 70 \text{ m}^2$
 triangles:
 $SA = 2 \cdot \frac{1}{2}(6)(4) = 24 \text{ m}^2$
 sides:
 $SA = 2(2)(7) + 2(2)(6) = 52 \text{ m}^2$
 bottom: $SA = (6)(7) = 42 \text{ m}^2$
 total:
 $SA = 70 + 24 + 52 + 42 = 188 \text{ m}^2$

Test 17

- C: a whole number
- B: 6
- B: \sqrt{RS}
- E: $\sqrt{R} + \sqrt{S} = \sqrt{R} + \sqrt{S}$:
cannot be simplified
- B: $(5\sqrt{X})(6\sqrt{Y}) = 30\sqrt{XY}$
- D: $10\sqrt{3}$
- A: $(3\sqrt{5})(3\sqrt{5}) = 9\sqrt{25} = 9(5) = 45$
- B: $\sqrt{45} = \sqrt{9\sqrt{5}} = 3\sqrt{5}$
- C: $\sqrt{24} = \sqrt{4\sqrt{6}} = 2\sqrt{6}$
- E: $\sqrt{42} = \sqrt{42}$:
cannot be simplified
- A: $\frac{24\sqrt{18}}{6\sqrt{9}} = \frac{24\sqrt{2}}{6} = \frac{4\sqrt{2}}{1} = 4\sqrt{2}$
- C: $\frac{15\sqrt{8}}{5\sqrt{2}} = \frac{15\sqrt{4}}{5} = \frac{3\sqrt{4}}{1} =$
 $3\sqrt{4} = 3(2) = 6$
- E: cannot be simplified
- B: $2\sqrt{3} + 3\sqrt{3} + 6\sqrt{3} =$
 $(2+3+6)\sqrt{3} = 11\sqrt{3}$
- D: $(5\sqrt{3})(4\sqrt{2}) = 20\sqrt{6}$

Test 18

- D: $a^2 + b^2 = c^2$
- C: the triangle is a right triangle
- D: $3^2 + 2^2 = H^2$
 $9 + 4 = H^2$
 $13 = H^2$
 $\sqrt{13} = H \approx 3.61$
 Of the answers given,
 4 is closest.
- C: $A^2 + B^2 = H^2$
 $\sqrt{A^2 + B^2} = \sqrt{H^2}$
 $\sqrt{A^2 + B^2} = H$
- B: $3^2 + 7^2 = H^2$
 $9 + 49 = H^2$
 $58 = H^2$
 $\sqrt{58} = H$
- E: $4^2 + 6^2 = H^2$
 $16 + 36 = H^2$
 $52 = H^2$
 $\sqrt{52} = H = \sqrt{4\sqrt{13}} = 2\sqrt{13}$
- C: $6^2 + 8^2 = 10^2$
 $36 + 64 = 100$
 $100 = 100$: true
 Since the Pythagorean
 theorem applies to this
 triangle, it is a right triangle.
- B: $5^2 + 9^2 = 12^2$
 $25 + 81 = 144$
 $106 = 144$: not true
 Since the Pythagorean
 theorem does not apply to
 this triangle, it is not a
 right triangle.
- C: 90°
- A: hypotenuse

$$11. \text{ D: } 5^2 + L^2 = (\sqrt{61})^2$$

$$25 + L^2 = 61$$

$$L^2 = 36$$

$$L = 6$$

$$12. \text{ B: } 12^2 + L^2 = 13^2$$

$$144 + L^2 = 169$$

$$L^2 = 25$$

$$L = 5$$

$$13. \text{ A: } ST = 12$$

$$12^2 + L^2 = 20^2$$

$$144 + L^2 = 400$$

$$L^2 = 256$$

$$L = 16$$

$$14. \text{ B: } A = \frac{1}{2}bh = \frac{1}{2}(24)(16)$$

$$= 192 \text{ units}^2$$

$$15. \text{ E: } A = 8(192) = 1,536 \text{ units}^2$$

Test 19

1. B: denominator

2. E: 1

3. A: common denominator

$$4. \text{ A: } \frac{5}{\sqrt{3}} = \frac{5\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{5\sqrt{3}}{\sqrt{9}} = \frac{5\sqrt{3}}{3}$$

$$5. \text{ D: } \frac{8\sqrt{2}}{\sqrt{4}} = \frac{8\sqrt{2}}{2} = \frac{4\sqrt{2}}{1} = 4\sqrt{2}$$

$$6. \text{ B: } \frac{4\sqrt{3}}{\sqrt{8}} = \frac{4\sqrt{3}\sqrt{2}}{\sqrt{8}\sqrt{2}} = \frac{4\sqrt{6}}{\sqrt{16}} =$$

$$\frac{4\sqrt{6}}{4} = \frac{\sqrt{6}}{1} = \sqrt{6}$$

$$7. \text{ B: } \frac{5\sqrt{5}}{\sqrt{5}} = \frac{5}{1} = 5$$

$$8. \text{ A: } \frac{3\sqrt{7}}{\sqrt{10}} = \frac{3\sqrt{7}\sqrt{10}}{\sqrt{10}\sqrt{10}} =$$

$$\frac{3\sqrt{70}}{\sqrt{100}} = \frac{3\sqrt{70}}{10}$$

$$9. \text{ C: } \frac{4\sqrt{15}}{6\sqrt{6}} = \frac{4\sqrt{15}\sqrt{6}}{6\sqrt{6}\sqrt{6}} = \frac{4\sqrt{90}}{6\sqrt{36}} =$$

$$\frac{4\sqrt{90}}{6(6)} = \frac{4\sqrt{90}}{36} = \frac{\sqrt{90}}{9} =$$

$$\frac{\sqrt{9}\sqrt{10}}{9} = \frac{3\sqrt{10}}{9} = \frac{\sqrt{10}}{3}$$

$$10. \text{ D: } \frac{15\sqrt{11}}{\sqrt{5}} = \frac{15\sqrt{11}\sqrt{5}}{\sqrt{5}\sqrt{5}} = \frac{15\sqrt{55}}{\sqrt{25}} =$$

$$\frac{15\sqrt{55}}{5} = \frac{3\sqrt{55}}{1} = 3\sqrt{55}$$

$$11. \text{ C: } \frac{4\sqrt{3}}{\sqrt{2}} + \frac{2\sqrt{3}}{\sqrt{2}} = \frac{6\sqrt{3}}{\sqrt{2}} = \frac{6\sqrt{3}\sqrt{2}}{\sqrt{2}\sqrt{2}} =$$

$$\frac{6\sqrt{6}}{\sqrt{4}} = \frac{6\sqrt{6}}{2} = \frac{3\sqrt{6}}{1} = 3\sqrt{6}$$

$$12. \text{ A: } \frac{7}{\sqrt{5}} + \frac{3}{\sqrt{2}} = \frac{7\sqrt{5}}{\sqrt{5}\sqrt{5}} + \frac{3\sqrt{2}}{\sqrt{2}\sqrt{2}} =$$

$$\frac{7\sqrt{5}}{\sqrt{25}} + \frac{3\sqrt{2}}{\sqrt{4}} = \frac{7\sqrt{5}}{5} + \frac{3\sqrt{2}}{2} =$$

$$\frac{7\sqrt{5}(2)}{5(2)} + \frac{3\sqrt{2}(5)}{2(5)} =$$

$$\frac{14\sqrt{5}}{10} + \frac{15\sqrt{2}}{10} = \frac{14\sqrt{5} + 15\sqrt{2}}{10}$$

$$13. \text{ D: } \frac{8\sqrt{6}}{\sqrt{3}} - \frac{5\sqrt{3}}{\sqrt{2}} = \frac{8\sqrt{6}\sqrt{3}}{\sqrt{3}\sqrt{3}} - \frac{5\sqrt{3}\sqrt{2}}{\sqrt{2}\sqrt{2}} =$$

$$\frac{8\sqrt{18}}{\sqrt{9}} - \frac{5\sqrt{6}}{\sqrt{4}} = \frac{8\sqrt{18}}{3} - \frac{5\sqrt{6}}{2} =$$

$$\frac{8\sqrt{9}\sqrt{2}}{3} - \frac{5\sqrt{6}}{2} = \frac{8(3)\sqrt{2}}{3} - \frac{5\sqrt{6}}{2} =$$

$$\frac{8\sqrt{2}}{1} - \frac{5\sqrt{6}}{2} = \frac{8\sqrt{2}(2)}{1(2)} - \frac{5\sqrt{6}}{2} =$$

$$\frac{16\sqrt{2}}{2} - \frac{5\sqrt{6}}{2} = \frac{16\sqrt{2} - 5\sqrt{6}}{2}$$

$$14. \text{ E: } \frac{6\sqrt{11}}{\sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{2}} = \frac{6\sqrt{11}\sqrt{3}}{\sqrt{3}\sqrt{3}} - \frac{2\sqrt{5}\sqrt{2}}{\sqrt{2}\sqrt{2}} =$$

$$\frac{6\sqrt{33}}{\sqrt{9}} - \frac{2\sqrt{10}}{\sqrt{4}} = \frac{6\sqrt{33}}{3} - \frac{2\sqrt{10}}{2} =$$

$$\frac{2\sqrt{33}}{1} - \frac{\sqrt{10}}{1} = 2\sqrt{33} - \sqrt{10}$$

$$15. \text{ E: } \frac{2\sqrt{2}}{\sqrt{8}} + \frac{7\sqrt{3}}{\sqrt{3}} = \frac{2}{\sqrt{4}} + \frac{7}{1} =$$

$$\frac{2}{2} + 7 = 1 + 7 = 8$$