

- 1)  $A = \sqrt{630} \times \sqrt{770} = \sqrt{3 \times 3 \times 7 \times 2 \times 5 \times 7 \times 11 \times 2 \times 5}$   
 $= \sqrt{3 \times 3 \times 2 \times 2 \times 5 \times 5 \times 7 \times 7 \times 11} = 3 \times 2 \times 5 \times 7 \sqrt{11} = \boxed{210\sqrt{11}}$
- 2)  $B = \frac{\sqrt{27000}}{\sqrt{1470}} = \sqrt{\frac{3 \times 3 \times 3 \times 10 \times 10 \times 10}{3 \times 7 \times 7 \times 10}} = \sqrt{\frac{3 \times 3 \times 10 \times 10}{7 \times 7}} = \frac{3 \times 10}{7} = \boxed{\frac{30}{7}}$
- 3)  $C = \frac{\sqrt{243}}{\sqrt{36} \times \sqrt{324}} = \sqrt{\frac{3 \times 3 \times 3 \times 3 \times 3}{2 \times 3 \times 2 \times 3 \times 2 \times 3 \times 3 \times 3 \times 3}} = \sqrt{\frac{1}{2 \times 2 \times 2 \times 3}} = \frac{1}{2 \times 2 \times \sqrt{3}}$   
 $= \frac{1}{4\sqrt{3}} = \frac{\sqrt{3}}{4\sqrt{3} \times \sqrt{3}} = \frac{\sqrt{3}}{12}$
- 4)  $D = (\sqrt{5} - \sqrt{7})^2 = \sqrt{5}^2 - 2 \times \sqrt{5} \times \sqrt{7} + \sqrt{7}^2 = 5 - 2\sqrt{35} + 7$   
 $= \boxed{12 - 2\sqrt{35}}$
- 5)  $E = 2\sqrt{63} + 4\sqrt{112} - 5\sqrt{343} + 8\sqrt{252}$   
 $= 2\sqrt{3 \times 3 \times 7} + 4\sqrt{2 \times 2 \times 2 \times 2 \times 7} - 5\sqrt{7 \times 7 \times 7} + 8\sqrt{2 \times 2 \times 3 \times 3 \times 7}$   
 $= 2 \times 3\sqrt{7} + 4 \times 2 \times 2\sqrt{7} - 5 \times 7\sqrt{7} + 8 \times 2 \times 3\sqrt{7}$   
 $= 6\sqrt{7} + 16\sqrt{7} - 35\sqrt{7} + 48\sqrt{7} = (6 + 16 - 35 + 48)\sqrt{7} = \boxed{35\sqrt{7}}$
- 6)  $F = (\sqrt{5} - \sqrt{2})^2 + (\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$   
 $= \sqrt{5}^2 - 2 \times \sqrt{5} \times \sqrt{2} + \sqrt{2}^2 + \sqrt{5}^2 - \sqrt{2}^2 = 5 - 2\sqrt{10} + 2 + 5 - 2$   
 $= \boxed{10 - 2\sqrt{10}}$