



Name: _____



1) Simplify the following surds fully:

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|----------------|--------------|-----------------|-------------|-----------------|--------------|------------------|---------------|
| a) $\sqrt{12}$ | $2\sqrt{3}$ | d) $\sqrt{48}$ | $4\sqrt{3}$ | g) $\sqrt{200}$ | $10\sqrt{2}$ | j) $8\sqrt{40}$ | $16\sqrt{10}$ |
| b) $\sqrt{72}$ | $6\sqrt{2}$ | e) $\sqrt{54}$ | $3\sqrt{6}$ | h) $3\sqrt{20}$ | $6\sqrt{5}$ | k) $5\sqrt{300}$ | $50\sqrt{3}$ |
| c) $\sqrt{40}$ | $2\sqrt{10}$ | f) $\sqrt{125}$ | $5\sqrt{5}$ | i) $7\sqrt{27}$ | $21\sqrt{3}$ | l) $9\sqrt{45}$ | $27\sqrt{5}$ |

2) Complete the following calculations, leaving your answer in simplified surd form:

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|----------------------------|--------------|-----------------------------|-------------|
| a) $5\sqrt{7} + 3\sqrt{7}$ | $8\sqrt{7}$ | f) $5\sqrt{2} + \sqrt{18}$ | $8\sqrt{2}$ |
| b) $3\sqrt{6} + 2\sqrt{6}$ | $5\sqrt{6}$ | g) $7\sqrt{2} - \sqrt{32}$ | $3\sqrt{2}$ |
| c) $9\sqrt{2} - 2\sqrt{2}$ | $7\sqrt{2}$ | h) $8\sqrt{6} - \sqrt{24}$ | $6\sqrt{6}$ |
| d) $7\sqrt{5} - \sqrt{5}$ | $6\sqrt{5}$ | i) $\sqrt{28} + \sqrt{63}$ | $5\sqrt{7}$ |
| e) $\sqrt{11} + \sqrt{11}$ | $2\sqrt{11}$ | j) $\sqrt{200} - \sqrt{50}$ | $5\sqrt{2}$ |

3) Calculate the following, leaving your answer in the simplest form:

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|--------------------------------|-------------|---------------------------------|--------------|---------------------------------|---------------|
| a) $\sqrt{3} \times \sqrt{5}$ | $\sqrt{15}$ | e) $\sqrt{6} \times \sqrt{6}$ | 6 | i) $5\sqrt{3} \times 7\sqrt{2}$ | $35\sqrt{6}$ |
| b) $\sqrt{5} \times \sqrt{7}$ | $\sqrt{35}$ | f) $\sqrt{5} \times \sqrt{20}$ | 10 | j) $6\sqrt{7} \times 3\sqrt{2}$ | $18\sqrt{14}$ |
| c) $\sqrt{10} \times \sqrt{3}$ | $\sqrt{30}$ | g) $\sqrt{7} \times \sqrt{14}$ | $7\sqrt{2}$ | k) $4\sqrt{2} \times 5\sqrt{2}$ | 40 |
| d) $\sqrt{13} \times \sqrt{2}$ | $\sqrt{26}$ | h) $\sqrt{12} \times \sqrt{60}$ | $12\sqrt{5}$ | l) $2\sqrt{3} \times 7\sqrt{8}$ | $28\sqrt{6}$ |

4) Calculate the following, leaving your answer in surd form:

- | | | | | | |
|-----------------------------------|-------------|------------------------------------|--------------|------------------------------------|--------------|
| a) $\sqrt{50} \div \sqrt{10}$ | $\sqrt{5}$ | d) $\sqrt{120} \div \sqrt{5}$ | $2\sqrt{6}$ | g) $24\sqrt{50} \div 6\sqrt{5}$ | $4\sqrt{10}$ |
| b) $\sqrt{96} \div \sqrt{8}$ | $2\sqrt{3}$ | e) $8\sqrt{20} \div 4\sqrt{5}$ | 4 | h) $18\sqrt{72} \div 3\sqrt{6}$ | $12\sqrt{3}$ |
| c) $\frac{\sqrt{200}}{\sqrt{50}}$ | 2 | f) $\frac{21\sqrt{60}}{3\sqrt{5}}$ | $14\sqrt{3}$ | i) $\frac{30\sqrt{54}}{5\sqrt{3}}$ | $18\sqrt{2}$ |

Exam question

Write $\sqrt{720} - \sqrt{245}$ in the form $a\sqrt{b}$ where a and b are integers

$5\sqrt{5}$

