BRIDGE Day 1
Independent Practice
Simplifying Surds: no calculators!

KING'S MATHS SCHOOL

1 Simplify

a) $(\sqrt{5})^2$ b) $(3\sqrt{5})^2$ c) $(2\sqrt{5})^3$

d) $3(2+\sqrt{5})-2(5-3\sqrt{5})$ e) $8(1+2\sqrt{5})-2\sqrt{5}(3-\sqrt{5})$

f) $(2+\sqrt{5})(4-3\sqrt{5})$ g) $(3+\sqrt{5})^2$

h) $(3+\sqrt{5})(3-\sqrt{5})$ i) $(8-3\sqrt{5})^2$

2 Prove formally that

a) $\sqrt{3}\times\sqrt{5}=\sqrt{15}$ b) $\sqrt{30}\div\sqrt{10}=\sqrt{3}$

c) $3\sqrt{2}\times 2\sqrt{3}=6\sqrt{6}$

3 Simplify

a) $\sqrt{18}$ b) $\sqrt{48}$ c) $\sqrt{98}$

d) $\sqrt{8}+\sqrt{50}$ e) $\sqrt{75}-\sqrt{48}$ f) $(\sqrt{3}+\sqrt{12})^2$

g) $(\sqrt{243}-\sqrt{75}-\sqrt{48})^2$ h) $(\sqrt{27}-\sqrt{3})(\sqrt{45}+\sqrt{5})$

i) $\sqrt{\frac{8}{15}}\times\sqrt{\frac{5}{16}}$ j) $\sqrt{1\frac{2}{3}}\div\sqrt{3\frac{3}{4}}$

4 Simplify

a) $\sqrt{8}+\sqrt{18}$ b) $\frac{\sqrt{8}+\sqrt{18}}{\sqrt{2}}$

c) $\sqrt{500}-\sqrt{80}$ d) $\frac{\sqrt{500}-\sqrt{80}}{\sqrt{20}}$ e) $\frac{\sqrt{500}-\sqrt{80}}{\sqrt{5}+\sqrt{20}}$

5 Simplify

a) $\frac{6}{\sqrt{2}}$ b) $\frac{21}{5\sqrt{3}}$ c) $\frac{12}{3-\sqrt{3}}$

d) $\frac{12}{\sqrt{6}-\sqrt{3}}$ e) $\frac{6-\sqrt{8}}{\sqrt{2}}$ f) $\frac{2-\sqrt{3}}{2+\sqrt{3}}$

6 Simplify

a) $\frac{40}{\sqrt{5}}-(\sqrt{5})^3-\sqrt{45}$ b) $\frac{(4-2\sqrt{5})^2}{(5+\sqrt{5})(3-\sqrt{5})}$

7 a) Which is bigger: 7 or $5\sqrt{2}$

b) Which is bigger: $\sqrt{3}$ or $\sqrt[3]{5}$