

L8

Grade B

Progression: Light

Simplifying Surds (A)



Section A

\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{2}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{50}$	$\sqrt{25 \times 2}$	$5\sqrt{2}$
$\sqrt{8}$		
$\sqrt{18}$		
$\sqrt{72}$		
$\sqrt{200}$		
\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{3}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{12}$		
$\sqrt{75}$		
$\sqrt{48}$		
	$\sqrt{36 \times 3}$	
	$\sqrt{144 \times 3}$	

\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{5}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{80}$		
$\sqrt{180}$		
	$\sqrt{100 \times 5}$	
		$9\sqrt{5}$
		$11\sqrt{5}$
\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{7}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{63}$		
$\sqrt{252}$		
	$\sqrt{81 \times 7}$	
		$7\sqrt{7}$
		$12\sqrt{7}$

Section B: Write the following surds in the form $a\sqrt{b}$ where a and b are integers and b is as small as possible.

- | | | | |
|-----------------|----------------|------------------|------------------|
| 1) $\sqrt{32}$ | 5) $\sqrt{45}$ | 9) $\sqrt{128}$ | 13) $\sqrt{24}$ |
| 2) $\sqrt{27}$ | 6) $\sqrt{98}$ | 10) $\sqrt{320}$ | 14) $\sqrt{810}$ |
| 3) $\sqrt{20}$ | 7) $\sqrt{28}$ | 11) $\sqrt{162}$ | 15) $\sqrt{60}$ |
| 4) $\sqrt{300}$ | 8) $\sqrt{44}$ | 12) $\sqrt{147}$ | 16) $\sqrt{56}$ |

Section C

\sqrt{n}	$k\sqrt{p}$
n is an integer	k is an integer p is the smallest integer possible
$\sqrt{288}$	$12\sqrt{2}$
$\sqrt{40}$	
$\sqrt{242}$	
$\sqrt{125}$	
	$5\sqrt{2}$
	$2\sqrt{3}$
	$8\sqrt{2}$
	$6\sqrt{5}$
	$3\sqrt{7}$
	$3\sqrt{6}$
	$10\sqrt{10}$
	$4\sqrt{7}$

\sqrt{n}	$k\sqrt{p}$
n is an integer	k is an integer p is the smallest integer possible
$\sqrt{68}$	
$\sqrt{192}$	
$\sqrt{245}$	
$\sqrt{52}$	
$\sqrt{116}$	
$\sqrt{150}$	
$\sqrt{126}$	
$\sqrt{240}$	
$\sqrt{384}$	
$\sqrt{375}$	
$\sqrt{224}$	
$\sqrt{208}$	

Simplifying Surds (A)

ANSWERS



Section A

\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{2}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{50}$	$\sqrt{25 \times 2}$	$5\sqrt{2}$
$\sqrt{8}$	$\sqrt{4 \times 2}$	$2\sqrt{2}$
$\sqrt{18}$	$\sqrt{9 \times 2}$	$3\sqrt{2}$
$\sqrt{72}$	$\sqrt{36 \times 2}$	$6\sqrt{2}$
$\sqrt{200}$	$\sqrt{100 \times 2}$	$10\sqrt{2}$
\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{3}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{12}$	$\sqrt{4 \times 3}$	$2\sqrt{3}$
$\sqrt{75}$	$\sqrt{25 \times 3}$	$5\sqrt{3}$
$\sqrt{48}$	$\sqrt{16 \times 3}$	$4\sqrt{3}$
$\sqrt{108}$	$\sqrt{36 \times 3}$	$6\sqrt{3}$
$\sqrt{432}$	$\sqrt{144 \times 3}$	$12\sqrt{3}$

\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{5}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{80}$	$\sqrt{16 \times 5}$	$4\sqrt{5}$
$\sqrt{180}$	$\sqrt{36 \times 5}$	$6\sqrt{5}$
$\sqrt{500}$	$\sqrt{100 \times 5}$	$10\sqrt{5}$
$\sqrt{405}$	$\sqrt{81 \times 5}$	$9\sqrt{5}$
$\sqrt{605}$	$\sqrt{121 \times 5}$	$11\sqrt{5}$
\sqrt{n}	$\sqrt{a \times b}$	$k\sqrt{7}$
Where n is an integer	Where a is a square number Where b is a prime number	Where k is an integer
$\sqrt{63}$	$\sqrt{9 \times 7}$	$3\sqrt{7}$
$\sqrt{252}$	$\sqrt{36 \times 7}$	$6\sqrt{7}$
$\sqrt{567}$	$\sqrt{81 \times 7}$	$9\sqrt{7}$
$\sqrt{343}$	$\sqrt{49 \times 7}$	$7\sqrt{7}$
$\sqrt{1008}$	$\sqrt{144 \times 7}$	$12\sqrt{7}$

Section B: Write the following surds in the form $a\sqrt{b}$ where a and b are integers and b is as small as possible.

- | | | | |
|------------------------------|-----------------------------|------------------------------|-------------------------------|
| 1) $\sqrt{32}$ $4\sqrt{2}$ | 5) $\sqrt{45}$ $3\sqrt{5}$ | 9) $\sqrt{128}$ $8\sqrt{2}$ | 13) $\sqrt{24}$ $2\sqrt{6}$ |
| 2) $\sqrt{27}$ $3\sqrt{3}$ | 6) $\sqrt{98}$ $7\sqrt{2}$ | 10) $\sqrt{320}$ $8\sqrt{5}$ | 14) $\sqrt{810}$ $9\sqrt{10}$ |
| 3) $\sqrt{20}$ $2\sqrt{5}$ | 7) $\sqrt{28}$ $2\sqrt{7}$ | 11) $\sqrt{162}$ $9\sqrt{2}$ | 15) $\sqrt{60}$ $2\sqrt{15}$ |
| 4) $\sqrt{300}$ $10\sqrt{3}$ | 8) $\sqrt{44}$ $2\sqrt{11}$ | 12) $\sqrt{147}$ $7\sqrt{3}$ | 16) $\sqrt{56}$ $2\sqrt{14}$ |

Section C

\sqrt{n}	$k\sqrt{p}$
n is an integer	k is an integer p is the smallest integer possible
$\sqrt{288}$	$12\sqrt{2}$
$\sqrt{40}$	$2\sqrt{10}$
$\sqrt{242}$	$11\sqrt{2}$
$\sqrt{125}$	$5\sqrt{5}$
$\sqrt{50}$	$5\sqrt{2}$
$\sqrt{12}$	$2\sqrt{3}$
$\sqrt{128}$	$8\sqrt{2}$
$\sqrt{180}$	$6\sqrt{5}$
$\sqrt{63}$	$3\sqrt{7}$
$\sqrt{54}$	$3\sqrt{6}$
$\sqrt{1000}$	$10\sqrt{10}$
$\sqrt{112}$	$4\sqrt{7}$

\sqrt{n}	$k\sqrt{p}$
n is an integer	k is an integer p is the smallest integer possible
$\sqrt{68}$	$2\sqrt{17}$
$\sqrt{192}$	$8\sqrt{3}$
$\sqrt{245}$	$7\sqrt{5}$
$\sqrt{52}$	$2\sqrt{13}$
$\sqrt{116}$	$2\sqrt{29}$
$\sqrt{150}$	$5\sqrt{6}$
$\sqrt{126}$	$3\sqrt{14}$
$\sqrt{240}$	$4\sqrt{15}$
$\sqrt{384}$	$8\sqrt{6}$
$\sqrt{375}$	$5\sqrt{15}$
$\sqrt{224}$	$4\sqrt{14}$
$\sqrt{208}$	$4\sqrt{13}$