Question 1:
Perfect Squares

$\sqrt{16}$ = _____ $\sqrt{25}$ =_____ $\sqrt{49}$ =_____ $\sqrt{4}$ =_____ $\sqrt{9}$ =_____

Question 2:
See if you can see a relationship between the numbers in Question 1 and the numbers below.

$\sqrt{32}$ $\sqrt{50}$ $\sqrt{98}$ $\sqrt{8}$ $\sqrt{18}$

The numbers are all _____

Question 3:
Write the numbers as a product of its factors, trying to keep a square number as a factor.
The first one is done for you.

$\sqrt{32} = \sqrt{16 \times 2}$ $\sqrt{50}$ =_____ $\sqrt{98}$ =_____ $\sqrt{8}$ =_____ $\sqrt{18}$ =_____

Question 4:
Separate the radicals.
The first one is done for you.

$\sqrt{32} = \sqrt{16} \times \sqrt{2}$ $\sqrt{50}$ =_____ $\sqrt{98}$ =_____ $\sqrt{8}$ =_____ $\sqrt{18}$ =_____

Question 5:
Simplify using your answers in question 4.
The first one is done for you.

$\sqrt{32} = 4\sqrt{2}$ $\sqrt{50}$ =_____ $\sqrt{98}$ =_____ $\sqrt{8}$ =_____ $\sqrt{18}$ =_____

Question 6:
Simplify the surds below. Remember to find factors that are square numbers.
Square numbers: **4 9 16 25 36 49 64 81 100**

$\sqrt{160}$ $\sqrt{250}$ $\sqrt{490}$ $\sqrt{40}$ $\sqrt{90}$

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Question 7:
Simplify the surds below. Remember to find factors that are square numbers

$\sqrt{300}$ $\sqrt{125}$ $\sqrt{120}$ $\sqrt{180}$ $\sqrt{48}$

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

$2\sqrt{50}$ $5\sqrt{50}$ $3\sqrt{45}$ $2\sqrt{40}$ $10\sqrt{45}$

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Cut out the cards below and match them into pairs of equivalent values.

$\sqrt{80}$	$\sqrt{120}$	$\sqrt{48}$	$4\sqrt{5}$
$\sqrt{60}$	$3\sqrt{72}$	$\sqrt{180}$	$2\sqrt{30}$
$\sqrt{121}$	$6\sqrt{50}$	$3\sqrt{75}$	$2\sqrt{15}$
$\sqrt{90}$	$5\sqrt{50}$	$2\sqrt{50}$	11
$4\sqrt{40}$	$\sqrt{140}$	$8\sqrt{45}$	$18\sqrt{2}$
$\sqrt{250}$	$\sqrt{369}$	$6\sqrt{45}$	$3\sqrt{10}$
$4\sqrt{3}$	$6\sqrt{5}$	$30\sqrt{2}$	$15\sqrt{3}$
$2\sqrt{35}$	$10\sqrt{2}$	$8\sqrt{10}$	$25\sqrt{2}$
$24\sqrt{5}$	$5\sqrt{10}$	$3\sqrt{41}$	$18\sqrt{5}$

Question 8:
Simplify the following expressions

$\sqrt{300} + \sqrt{48}$

$\sqrt{18} + \sqrt{200}$

$\sqrt{147} - \sqrt{27}$

$\sqrt{315} - \sqrt{875}$

$\dfrac{\sqrt{45}}{\sqrt{80}}$

$\dfrac{\sqrt{128}}{\sqrt{72}}$

$\dfrac{\sqrt{1500}}{\sqrt{375}}$

$\dfrac{\sqrt{140}}{\sqrt{560}}$

Answers

$\sqrt{80} = 4\sqrt{5}$ $\sqrt{120} = 2\sqrt{30}$ $\sqrt{48} = 4\sqrt{3}$

$\sqrt{60} = 2\sqrt{15}$ $3\sqrt{72} = 18\sqrt{2}$ $\sqrt{180} = 6\sqrt{5}$

$\sqrt{121} = 11$ $6\sqrt{50} = 30\sqrt{2}$ $3\sqrt{75} = 15\sqrt{3}$

$\sqrt{90} = 3\sqrt{10}$ $5\sqrt{50} = 25\sqrt{2}$ $2\sqrt{50} = 10\sqrt{2}$

$4\sqrt{40} = 8\sqrt{10}$ $\sqrt{140} = 2\sqrt{35}$ $8\sqrt{45} = 24\sqrt{5}$

$\sqrt{250} = 5\sqrt{10}$ $\sqrt{369} = 3\sqrt{41}$ $6\sqrt{45} = 18\sqrt{5}$