

Estimation - Worksheet

Skill

Group A - Single step estimation

Estimate the value of the following:

1) $873 + 372$

2) $873 - 372$

3) 873×372

4) 89×11.2

5) $89 \div 11.2$

6) 89×89

7) 27×27

8) 28^2

9) 284^2

Group B - Estimation using the order of operations (BIDMAS)

Estimate the value of the following:

1) $(57.5 \div 2.66) - 9.7$

2) $11.2 - (31.6 \div 3.06)$

3) $\left(\frac{5.9}{2.3}\right) \times 2.99$

4) $\frac{65.8 - 9.8}{2.79}$

5) $\frac{59.3 \times 21.6}{102.4}$

6) $\frac{32.4 \times 19.5}{3.87 \times 5.03}$

7) $\frac{204 \times 9.87}{0.53}$

8) $\frac{3.99 \times 1.99}{0.22}$

9) $\frac{(6.1)^2}{0.387}$

Group C - Estimation with square roots

Write down an estimation for the following calculations. Give your answer to 1 decimal place:

1) $\sqrt{26}$

2) $\sqrt{110}$

3) $\sqrt[3]{30}$

4) $\sqrt{60}$

5) $\sqrt{90}$

6) $\sqrt{120}$

7) $\sqrt{\frac{64.5}{0.98}}$

8) $\sqrt{\frac{64.4}{0.26}}$

9) $\sqrt{\frac{49.1}{0.51}}$

Estimation - Worksheet

Applied

- 1) Write down an estimate for $\sqrt{97}$ to 1d.p.
- 2) Work out an estimate for $\frac{6.7 \times 193}{0.51}$.
- 3) A triangle shaped flower bed has a perimeter of 31.25m. If the triangle is an equilateral triangle what is the estimated length of each side?
- 4) The Tiny Café has the following drinks menu:

Drinks Menu	
Tea	£1.85
Coffee	£1.95
Hot Chocolate	£3.05
(Deluxe)	£3.55
Bottled Water	£1.20
Fizzy Drink Cans	£0.85

- (a) Estimate the total cost of buying 2 cups of tea, 1 deluxe hot chocolate and a bottle of water.
- (b) Samina wants to buy some drinks for herself and her four friends. She has £10. Use estimation to determine whether she can afford to buy 1 tea, 2 coffees, a hot chocolate and a fizzy drink. Explain your answer.

Estimation - Exam Questions

- 1) (a) Estimate: 3645×2.4

.....
(1)

- (b) Estimate: 58.73×3.86

.....
(1)
(2 marks)

-
- 2) (a) Bob buys 53 tennis balls at £0.53 each.
Estimate how much Bob spent.

.....
(1)

- (b) A flower bed measures 9.02m wide and 3.94m long.
Estimate the area of the flower bed.

.....
(1)
(2 marks)

-
- 3) (a) Estimate the answer to: 7.1^2

.....
(1)

- (b) Find an estimate for $\sqrt{10}$. Give your answer to 1 decimal place.

.....
(2)

- (c) Estimate the value of:
$$\frac{52 \times 6.78}{0.51}$$

.....
(2)
(5 marks)

Estimation - Answers

	Question	Answer
	Skill Questions	
Group A	Estimate the value of the following: 1) $873 + 372$ 2) $873 - 372$ 3) 873×372 4) 89×11.2 5) $89 \div 11.2$ 6) 89×89 7) 27×27 8) 28^2 9) 284^2	1) 1300 2) 500 3) 360000 4) 900 5) 9 6) 8100 7) 900 8) 900 9) 90000
Group B	Estimate the value of the following: 1) $(57.5 \div 2.66) - 9.7$ 2) $11.2 - (31.6 \div 3.06)$ 3) $\left(\frac{5.9}{2.3}\right) \times 2.99$ 4) $\frac{65.8 - 9.8}{2.79}$ 5) $\frac{59.3 \times 21.6}{102.4}$ 6) $\frac{32.4 \times 19.5}{3.87 \times 5.03}$ 7) $\frac{204 \times 9.87}{0.53}$ 8) $\frac{3.99 \times 1.99}{0.22}$ 9) $\frac{(6.1)^2}{0.387}$	1) 10 2) 0 3) 9 4) 20 5) 12 6) 30 7) 4000 8) 40 9) 90

Estimation - Answers

Group C	Write down an estimation for the following calculations. Give your answer to 1 decimal place: 1) $\sqrt{26}$ 2) $\sqrt{110}$ 3) $\sqrt[3]{30}$ 4) $\sqrt{60}$ 5) $\sqrt{90}$ 6) $\sqrt{120}$ 7) $\sqrt{\frac{64.5}{0.98}}$ 8) $\sqrt{\frac{64.4}{0.26}}$ 9) $\sqrt{\frac{49.1}{0.51}}$	1) 5.1 2) 10.5 3) 3.1 4) 7.7 5) 9.5 6) 11 7) 8.1 8) 15.7 9) 9.8
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Estimation - Answers

	Question	Answer														
	Applied Questions															
1)	Write down an estimate for $\sqrt{97}$ to 1d.p.	9.8 or 9.9 to 1 decimal place.														
2)	Work out an estimate for $\frac{6.7 \times 193}{0.51}$.	2800														
3)	A triangle shaped flower bed has a perimeter of 31.25m. If the triangle is an equilateral triangle what is the estimated length of each side?	10m														
4)	The Tiny Café has the following drinks menu:<table><tr><th colspan="2">Drinks Menu</th></tr><tr><td>Tea</td><td>£1.85</td></tr><tr><td>Coffee</td><td>£1.95</td></tr><tr><td>Hot Chocolate</td><td>£3.05</td></tr><tr><td>(Deluxe)</td><td>£3.55</td></tr><tr><td>Bottled Water</td><td>£1.20</td></tr><tr><td>Fizzy Drink</td><td>£0.85</td></tr></table> a) Estimate the total cost of buying 2 cups of tea, 1 deluxe hot chocolate and a bottle of water.	Drinks Menu		Tea	£1.85	Coffee	£1.95	Hot Chocolate	£3.05	(Deluxe)	£3.55	Bottled Water	£1.20	Fizzy Drink	£0.85	a) £9
Drinks Menu																
Tea	£1.85															
Coffee	£1.95															
Hot Chocolate	£3.05															
(Deluxe)	£3.55															
Bottled Water	£1.20															
Fizzy Drink	£0.85															
	b) Samina wants to buy some drinks for herself and her four friends. She has £10. Use estimation to determine whether she can afford to buy 1 tea, 2 coffees, a hot chocolate and a fizzy drink. Explain your answer.	b) £2 (Tea) £2 (Coffee) £3 (Hot Choc) £1 (Fizzy Drink) Yes - the estimate is £10 with only the hot chocolate value being rounded down by £0.05, the rest are rounded up.														

Estimation - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	Estimate: 3645×2.4	(a) $3645 \times 2.4 \approx 4000 \times 2$ 8000	(1)
(b)	Estimate: 58.73×3.86	(b) $58.73 \times 3.86 \approx 60 \div 4$ 15	(1)
2) (a)	Bob buys 53 tennis balls at £0.53 each. Estimate how much Bob spent.	(a) $53 \times 0.53 \approx 50 \times 0.50$ £25	(1)
(b)	A flower bed measures 9.02m wide and 3.94m long. Estimate the area of the flower bed.	(b) $9.02 \times 3.94 \approx 9 \times 4$ $36m^2$	(1)
3) (a)	Estimate the answer to: 7.1^2	(a) $7.1^2 \approx 7^2$ 49	(1)
(b)	Find an estimate for $\sqrt{10}$. Give your answer to 1 decimal place.	(b) $\sqrt{10}$ lies between $\sqrt{9}$ and $\sqrt{16}$. $\sqrt{10}$ lies between 3 and 4. Answer between 3.1 and 3.3	(1) (1)
(c)	Estimate the value of: $\frac{52 \times 6.78}{0.51}$	(c) $\frac{52 \times 6.78}{0.51} \approx \frac{50 \times 7}{0.5}$ $\frac{350}{0.5} = 700$	(1) (1)

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