

## UNIT 6 *Number System*

## Overhead Slides

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### **Overhead Slides**

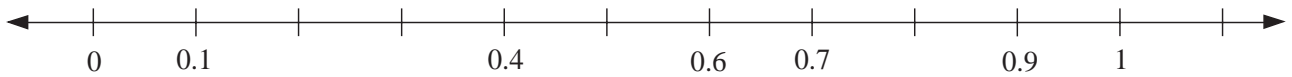
- 6.1 Decimal Scales
- 6.2 Multiplying by Powers of 10
- 6.3 Dividing by Powers of 10
- 6.4 Fractions, Decimals and Percentages
- 6.5 Order of Calculations
- 6.6 Equivalent Expressions
- 6.7 Significant Figures
- 6.8 Decimal Places

## OS 6.1

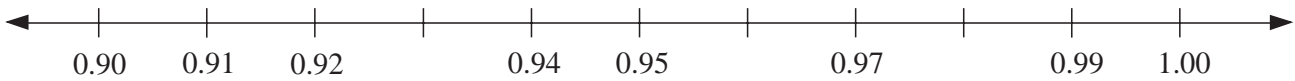
*Decimal Scales*

Fill in each gap with the correct number.

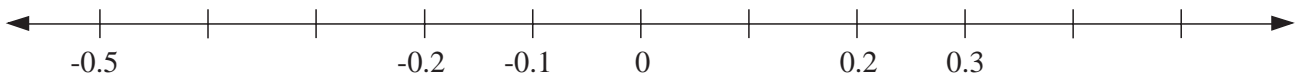
(a)



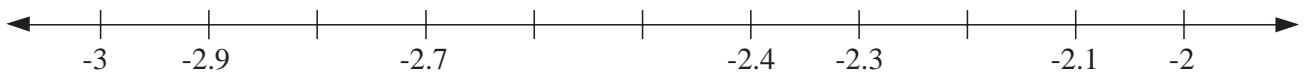
(b)



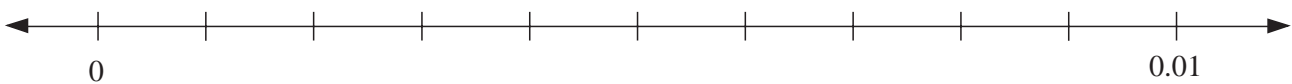
(c)



(d)



(e)



**OS 6.2***Multiplying by Powers of 10*

<b>Example</b>	<b>Number</b>	$\times 10$	$\times 10^2$	$\times 10^3$
<b>1.</b>	0.5		50	
<b>2.</b>	- 62.3			
<b>3.</b>	0.007			7
<b>4.</b>	- 20.25			
<b>5.</b>	0.013 75			
<b>6.</b>				1 400
<b>7.</b>	58.16			
<b>8.</b>		- 15.11		
<b>9.</b>	109.9			
<b>10.</b>	- 0.084			
<b>11.</b>			780	
<b>12.</b>				- 312

**OS 6.3***Dividing by Powers of 10*

<b>Example</b>	<b>Number</b>	$\div 10$	$\div 100$	$\div 1\,000$
<b>1.</b>	49.8			
<b>2.</b>	0.035			
<b>3.</b>	- 7.09			- 0.007 09
<b>4.</b>	0.01			
<b>5.</b>		6.4		
<b>6.</b>				
<b>7.</b>	- 2.32			
<b>8.</b>	0.005			
<b>9.</b>	178			
<b>10.</b>			0.965	
<b>11.</b>	0.16			
<b>12.</b>	- 3.2			

**OS 6.4***Fractions, Decimals and Percentages*

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<b>Proportion</b>	<b>Fraction</b>	<b>Decimal</b>	<b>Percentage</b>
One tenth	$\frac{1}{10}$	0.1	10%
	$\frac{1}{8}$		
		0.25	
One third			
			50%
	$\frac{2}{3}$		
			75%
One whole			

**OS 6.5***Order of Calculations*

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1. Simplify expressions within brackets first.

e.g. 
$$\begin{aligned} 2 + (6 - 3) &= 2 + 3 \\ &= 5 \end{aligned}$$

2. Simplify the expressions in the innermost pair of brackets first.

e.g. 
$$\begin{aligned} 2 + [14 - (2 + 5)] &= 2 + [14 - 7] \\ &= 2 + 7 \\ &= 9 \end{aligned}$$

3. Work from left to right.

e.g. 
$$\begin{aligned} 30 + 8 - 12 &= 38 - 12 \\ &= 26 \\ 36 \div 4 \times 3 &= 9 \times 3 \\ &= 27 \end{aligned}$$

4. Do multiplication or division *before* addition or subtraction.

e.g. 
$$\begin{aligned} 11 + 2 \times 3 - 20 \div 5 &= 11 + 6 - 4 \\ &= 17 - 4 \\ &= 13 \end{aligned}$$

**OS 6.6***Equivalent Expressions*

Match an expression from **Column A** to one in **Column B** which has the same answer.

The first one has been done for you.

<b>Column A</b>			<b>Column B</b>		
(a)	$(4 + 2) \times 3$	•	•	(i)	$4 \times 3 - 2 \times 3$
(b)	$(4 - 2) \times 3$	•	•	(ii)	$81 \div 9 - 18 \div 9$
(c)	$(18 + 6) \div 6$	•	•	(iii)	$4 \times 3 + 2 \times 3$
(d)	$(18 - 6) \div 6$	•	•	(iv)	$11 \times 10 - 6 \times 10$
(e)	$(11 + 6) \times 10$	•	•	(v)	$81 \div 9 + 18 \div 9$
(f)	$(11 - 6) \times 10$	•	•	(vi)	$18 \div 6 + 6 \div 6$
(g)	$(81 + 18) \div 9$	•	•	(vii)	$11 \times 10 + 6 \times 10$
(h)	$(81 - 18) \div 9$	•	•	(viii)	$18 \div 6 - 6 \div 6$

**OS 6.7***Significant Figures*

Write each number to the stated number of *significant figures*.

<b>Number</b>	<b>3 s.f.</b>	<b>2 s.f.</b>	<b>1 s.f.</b>
4 253	4 250	4 300	4 000
2 515			
2 087			
9 986			
2 198			
1 009			
13 004			
189 997			
1 993 349			



**OS 6.8***Decimal Places*

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Write each number to the stated number of *decimal places*.

<b>Number</b>	<b>2 d.p.</b>	<b>1 d.p.</b>
2.459	2.46	2.5
10.726		
0.003		
1.999		
0.609		
5.656		
0.606 06		
0.084		
4.909		
20.009		