

## Adding and subtracting standard form - Worksheet

### Skill

#### Group A - Adding

Complete each calculation, writing each answer in standard form:

- |                                     |                                         |                                         |
|-------------------------------------|-----------------------------------------|-----------------------------------------|
| 1) $3 \times 10^2 + 4 \times 10^3$  | 2) $3.1 \times 10^2 + 4.2 \times 10^3$  | 3) $3.5 \times 10^2 + 4.6 \times 10^3$  |
| 4) $9 \times 10^4 + 4 \times 10^3$  | 5) $9.2 \times 10^4 + 4.7 \times 10^3$  | 6) $9.8 \times 10^4 + 4.5 \times 10^3$  |
| 7) $7 \times 10^5 + 6 \times 10^4$  | 8) $7.2 \times 10^5 + 6.1 \times 10^4$  | 9) $7.9 \times 10^5 + 6.8 \times 10^4$  |
| 10) $4 \times 10^5 + 2 \times 10^6$ | 11) $4.3 \times 10^5 + 2.8 \times 10^6$ | 12) $4.7 \times 10^5 + 2.6 \times 10^6$ |
- 

#### Group B - Subtracting

Complete each calculation, writing each answer in standard form:

- |                                     |                                         |                                         |
|-------------------------------------|-----------------------------------------|-----------------------------------------|
| 1) $7 \times 10^3 - 4 \times 10^2$  | 2) $7.5 \times 10^3 - 4.1 \times 10^2$  | 3) $7.8 \times 10^3 - 4.6 \times 10^2$  |
| 4) $2 \times 10^4 - 9 \times 10^3$  | 5) $2.3 \times 10^4 - 9.7 \times 10^3$  | 6) $2.5 \times 10^4 - 9.4 \times 10^3$  |
| 7) $6 \times 10^5 - 3 \times 10^4$  | 8) $6.1 \times 10^5 - 3.5 \times 10^4$  | 9) $6.4 \times 10^5 - 3.2 \times 10^4$  |
| 10) $4 \times 10^6 - 9 \times 10^5$ | 11) $4.2 \times 10^6 - 9.5 \times 10^5$ | 12) $4.7 \times 10^6 - 9.8 \times 10^5$ |
- 

#### Group C - Negative powers

Complete each calculation, writing each answer in standard form:

- |                                           |                                               |                                               |
|-------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 1) $3 \times 10^{-1} + 4 \times 10^{-2}$  | 2) $3.1 \times 10^{-1} + 4.3 \times 10^{-2}$  | 3) $3.4 \times 10^{-1} + 4.8 \times 10^{-2}$  |
| 4) $8 \times 10^{-2} + 5 \times 10^{-3}$  | 5) $8.3 \times 10^{-2} + 5.7 \times 10^{-3}$  | 6) $8.1 \times 10^{-2} + 5.4 \times 10^{-3}$  |
| 7) $3 \times 10^{-1} - 4 \times 10^{-2}$  | 8) $3.1 \times 10^{-1} - 4.3 \times 10^{-2}$  | 9) $3.4 \times 10^{-1} - 4.8 \times 10^{-2}$  |
| 10) $8 \times 10^{-2} - 5 \times 10^{-3}$ | 11) $8.3 \times 10^{-2} - 5.7 \times 10^{-3}$ | 12) $8.1 \times 10^{-2} - 5.4 \times 10^{-3}$ |

## Adding and subtracting standard form - Worksheet

### Applied

- 1) (a) Work out  $4 \times 10^5 + 6 \times 10^3$ . Write your answer in standard form.  
(b) Work out  $4 \times 10^5 - 6 \times 10^3$ . Write your answer in standard form.

- 2) Let  $A = 2.4 \times 10^5$  and  $B = 5.8 \times 10^6$ .  
(a) Determine the value of  $A + B$  in standard form.  
(b) Determine the value of  $B - A$  in standard form.

- 3) Here are the populations of three European cities:

City	Population
<i>Paris</i>	$1.09 \times 10^7$
<i>Rome</i>	$3.91 \times 10^6$
<i>Athens</i>	$3.48 \times 10^6$

- (a) What is the total population of Paris and Rome? Write your answer as an ordinary number to 3 significant figures.  
(b) What is the difference in population between Paris and Athens? Write your answer in standard form, to 2 significant figures.

## Adding and subtracting standard form - Exam Questions

- 1) Work out  $5 \times 10^3 + 3 \times 10^2$ . Circle the correct answer:

$8 \times 10^5$        $5.3 \times 10^2$        $8 \times 10^6$        $5.3 \times 10^3$

(1 mark)

- 
- 2) Work out  $7.5 \times 10^5 + 6.2 \times 10^4$ .

Give your answer in standard form.

.....  
(3 marks)

- 
- 3) Work out  $6.8 \times 10^4 - 7.2 \times 10^3$ .

Give your answer as an ordinary number.

.....  
(3 marks)

- 
- 4) Work out  $9 \times 10^{-2} - 6 \times 10^{-3}$ . Circle the correct answer:

$3 \times 10^{-5}$        $8.4 \times 10^{-2}$        $3 \times 10^6$        $8.4 \times 10^{-3}$

(1 mark)

## Adding and subtracting standard form - Answers

	Question	Answer
	Skill Questions	
Group A	<p>Complete each calculation, writing each answer in standard form:</p> <p>1) <math>3 \times 10^2 + 4 \times 10^3</math></p> <p>2) <math>3.1 \times 10^2 + 4.2 \times 10^3</math></p> <p>3) <math>3.5 \times 10^2 + 4.6 \times 10^3</math></p> <p>4) <math>9 \times 10^4 + 4 \times 10^3</math></p> <p>5) <math>9.2 \times 10^4 + 4.7 \times 10^3</math></p> <p>6) <math>9.8 \times 10^4 + 4.5 \times 10^3</math></p> <p>7) <math>7 \times 10^5 + 6 \times 10^4</math></p> <p>8) <math>7.2 \times 10^5 + 6.1 \times 10^4</math></p> <p>9) <math>7.9 \times 10^5 + 6.8 \times 10^4</math></p> <p>10) <math>4 \times 10^5 + 2 \times 10^6</math></p> <p>11) <math>4.3 \times 10^5 + 2.8 \times 10^6</math></p> <p>12) <math>4.7 \times 10^5 + 2.6 \times 10^6</math></p>	<p>1) <math>4.3 \times 10^3</math></p> <p>2) <math>4.51 \times 10^3</math></p> <p>3) <math>4.95 \times 10^3</math></p> <p>4) <math>9.4 \times 10^4</math></p> <p>5) <math>9.67 \times 10^4</math></p> <p>6) <math>1.025 \times 10^5</math></p> <p>7) <math>7.6 \times 10^5</math></p> <p>8) <math>7.81 \times 10^5</math></p> <p>9) <math>8.58 \times 10^5</math></p> <p>10) <math>2.4 \times 10^6</math></p> <p>11) <math>3.23 \times 10^6</math></p> <p>12) <math>3.07 \times 10^6</math></p>
Group B	<p>Complete each calculation, writing each answer in standard form:</p> <p>1) <math>7 \times 10^3 - 4 \times 10^2</math></p> <p>2) <math>7.5 \times 10^3 - 4.1 \times 10^2</math></p> <p>3) <math>7.8 \times 10^3 - 4.6 \times 10^2</math></p> <p>4) <math>2 \times 10^4 - 9 \times 10^3</math></p> <p>5) <math>2.3 \times 10^4 - 9.7 \times 10^3</math></p> <p>6) <math>2.5 \times 10^4 - 9.4 \times 10^3</math></p> <p>7) <math>6 \times 10^5 - 3 \times 10^4</math></p>	<p>1) <math>6.6 \times 10^3</math></p> <p>2) <math>7.09 \times 10^3</math></p> <p>3) <math>7.34 \times 10^3</math></p> <p>4) <math>1.1 \times 10^4</math></p> <p>5) <math>1.33 \times 10^4</math></p> <p>6) <math>1.56 \times 10^4</math></p> <p>7) <math>5.7 \times 10^5</math></p>

## Adding and subtracting standard form - Answers

<b>Group B</b> contd	<b>8)</b> $6.1 \times 10^5 - 3.5 \times 10^4$ <b>9)</b> $6.4 \times 10^5 - 3.2 \times 10^4$ <b>10)</b> $4 \times 10^6 - 9 \times 10^5$ <b>11)</b> $4.2 \times 10^6 - 9.5 \times 10^5$ <b>12)</b> $4.7 \times 10^6 - 9.8 \times 10^5$	<b>8)</b> $5.75 \times 10^5$ <b>9)</b> $6.08 \times 10^5$ <b>10)</b> $3.1 \times 10^6$ <b>11)</b> $3.25 \times 10^6$ <b>12)</b> $3.72 \times 10^6$
<b>Group C</b>	Complete each calculation, writing each answer in standard form: <b>1)</b> $3 \times 10^{-1} + 4 \times 10^{-2}$ <b>2)</b> $3.1 \times 10^{-1} + 4.3 \times 10^{-2}$ <b>3)</b> $3.4 \times 10^{-1} + 4.8 \times 10^{-2}$ <b>4)</b> $8 \times 10^{-2} + 5 \times 10^{-3}$ <b>5)</b> $8.3 \times 10^{-2} + 5.7 \times 10^{-3}$ <b>6)</b> $8.1 \times 10^{-2} + 5.4 \times 10^{-3}$ <b>7)</b> $3 \times 10^{-1} - 4 \times 10^{-2}$ <b>8)</b> $3.1 \times 10^{-1} - 4.3 \times 10^{-2}$ <b>9)</b> $3.4 \times 10^{-1} - 4.8 \times 10^{-2}$ <b>10)</b> $8 \times 10^{-2} - 5 \times 10^{-3}$ <b>11)</b> $8.3 \times 10^{-2} - 5.7 \times 10^{-3}$ <b>12)</b> $8.1 \times 10^{-2} - 5.4 \times 10^{-3}$	<b>1)</b> $3.4 \times 10^{-1}$ <b>2)</b> $3.53 \times 10^{-1}$ <b>3)</b> $3.88 \times 10^{-1}$ <b>4)</b> $8.5 \times 10^{-2}$ <b>5)</b> $8.87 \times 10^{-2}$ <b>6)</b> $8.64 \times 10^{-2}$ <b>7)</b> $2.6 \times 10^{-1}$ <b>8)</b> $2.67 \times 10^{-1}$ <b>9)</b> $2.92 \times 10^{-1}$ <b>10)</b> $7.5 \times 10^{-2}$ <b>11)</b> $7.73 \times 10^{-2}$ <b>12)</b> $7.56 \times 10^{-2}$

## Adding and subtracting standard form - Answers

	Question	Answer								
	Applied Questions									
1)	<p><b>a)</b> Work out <math>4 \times 10^5 + 6 \times 10^3</math>. Write your answer in standard form.</p> <p><b>b)</b> Work out <math>4 \times 10^5 - 6 \times 10^3</math>. Write your answer in standard form.</p>	<p><b>a)</b> <math>4.06 \times 10^5</math></p> <p><b>b)</b> <math>3.94 \times 10^5</math></p>								
2)	<p>Let <math>A = 2.4 \times 10^5</math> and <math>B = 5.8 \times 10^6</math>.</p> <p><b>a)</b> Determine the value of <math>A + B</math> in standard form.</p> <p><b>b)</b> Determine the value of <math>B - A</math> in standard form.</p>	<p><b>a)</b> <math>6.04 \times 10^6</math></p> <p><b>b)</b> <math>5.56 \times 10^6</math></p>								
3)	<p>Here are the populations of three European cities:</p> <table><tr><th>City</th><th>Population</th></tr><tr><td><i>Paris</i></td><td><math>1.09 \times 10^7</math></td></tr><tr><td><i>Rome</i></td><td><math>3.91 \times 10^6</math></td></tr><tr><td><i>Athens</i></td><td><math>3.48 \times 10^6</math></td></tr></table> <p><b>a)</b> What is the total population of Paris and Rome? Write your answer as an ordinary number to 3 significant figures.</p> <p><b>b)</b> What is the difference in population between Paris and Athens? Write your answer in standard form, to 2 significant figures.</p>	City	Population	<i>Paris</i>	$1.09 \times 10^7$	<i>Rome</i>	$3.91 \times 10^6$	<i>Athens</i>	$3.48 \times 10^6$	<p><b>a)</b> 14800000</p> <p><b>b)</b> <math>7.4 \times 10^6</math></p>
City	Population									
<i>Paris</i>	$1.09 \times 10^7$									
<i>Rome</i>	$3.91 \times 10^6$									
<i>Athens</i>	$3.48 \times 10^6$									

## Adding and subtracting standard form - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	Work out $5 \times 10^3 + 3 \times 10^2$ . Circle the correct answer.  $8 \times 10^5$ $5.3 \times 10^2$ $8 \times 10^6$ $5.3 \times 10^3$	$5.3 \times 10^3$	(1)
2)	Work out $7.5 \times 10^5 + 6.2 \times 10^4$ . Give your answer in standard form.	$750\,000 + 62\,000$ <b>or</b> $75 \times 10^4$ <b>or</b> $0.62 \times 10^5$ Digits 812 <b>seen</b> $8.12 \times 10^5$	(1) (1) (1)
3)	Work out $6.8 \times 10^4 - 7.2 \times 10^3$ . Give your answer as an ordinary number	$68\,000 - 7\,200$ <b>or</b> $68 \times 10^3$ <b>or</b> $0.72 \times 10^4$ Digits 608 <b>seen</b> 60800	(1) (1) (1)
4)	Work out $9 \times 10^{-2} - 6 \times 10^{-3}$ . Circle the correct answer.  $3 \times 10^{-5}$ $8.4 \times 10^{-2}$ $3 \times 10^6$ $8.4 \times 10^{-3}$	$8.4 \times 10^{-2}$	(1)

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