TEST 2 Standard Form

Marks: /80

Time: 1 hour 30 minutes

Name: ..... Date: .....

INSTRUCTIONS TO CANDIDATES

Section A (40 marks) **Time: 45 minutes**

1. Answer **all** the questions in this section.
2. Calculators may **not** be used in this section.
3. All working must be clearly shown. Omission of essential working will result in loss of marks.
4. The marks for each question is shown in brackets [ ] at the end of each question.

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1 Express each of the following in the standard form.

(a) 62 800

(b) 0.00901

Answer (a) ..... [1]

(b) ..... [1]

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2 Given that $0.25 \times 16 \times 3.3 = A \times 10^n$ where $1 \leq A < 10$ and n is an integer, find the values of A and n.

Answer $A =$ .....

$n =$ ..... [2]

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3 (a) Express in standard form
(i) 540, (ii) 0.018.
(b) Evaluate $540 \div 0.018$, giving your answer in standard form.

Answer (a) (i) ..... [1]

(ii) ..... [1]

(b) ..... [2]

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4 (a) Arrange the following in descending order.

$$2.5 \times 10^{-11},\ 1.3 \times 10^{-10},\ 32 \times 10^{-12}$$

(b) Express the following in standard form, giving your answers correct to 2 significant figures.
(i) 6158.02×10^{-7}
(ii) 0.000374×10^{10}

Answer (a) ..... [1]

(b) (i) ..... [1]

(ii) ..... [1]

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5 Evaluate the following, giving your answers in standard form.

(a) $8.8 \times 10^{-5} - 9.2 \times 10^{-6}$

(b) $(3.5 \times 10^{6}) \times (6 \times 10^{5})$

Answer (a) ..... [2]

(b) ..... [2]

6 (a) If $m = 1.2 \times 10^2$, evaluate the value of $\sqrt{m + 1}$, giving your answer in standard form.

(b) Given that $\frac{33.6 \times 12}{6.4 \times 35} = 1.8$, find the value of $\frac{3.36 \times 1.2}{64 \times 3.5}$ in the form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer.

Answer (a) ..... [2]

(b) ..... [2]

7 Given that $x = 1.5 \times 10^6$, find the values of the following, giving your answers in standard form.

(a) $8x$

(b) $\frac{9}{x}$

(c) $\frac{450}{x^2}$

Answer (a) ..... [1]

(b) ..... [1]

(c) ..... [2]

8 Find the values of the following, expressing each answer in standard form.

(a) $\frac{1}{2} \times 10^8 + 9 \times 10^7$

(b) $10^{-4} - 3.1 \times 10^{-5}$

(c) $3(0.025 \times 10^5) - 0.65 \times 10^3$

(d) $\frac{1.33 \times 10^6}{7 \times 10^{-1}}$

Answer (a) ..... [2]

(b) ..... [1]

(c) ..... [2]

(d) ..... [2]

9 Given that $p = 4 \times 10^6$, $q = 5 \times 10^{-5}$ and $r = 3 \times 10^8$, find the values of the following, giving your answers in standard form.

(a) pq

(b) $p + \frac{1}{q}$

(c) $\frac{r}{q}$

Answer (a) ..... [2]

(b) ..... [2]

(c) ..... [2]

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10 The diameters of two circular discs are 1.2×10^2 cm and 5×10^{-3} cm respectively. Find, giving each answer in standard form,

(a) the radius of the larger circular disc,

(b) the value of $\frac{\text{the radius of the larger disc}}{\text{the radius of the smaller disc}}$.

Answer (a) ..... cm [2]

(b) ..... [2]

INSTRUCTIONS TO CANDIDATES

Section B (40 marks) **Time: 45 minutes**

1. Answer **all** the questions in this section.
2. Calculators may be used in this section.
3. All working must be clearly shown. Omission of essential working will result in loss of marks.
4. The marks for each question is shown in brackets [ ] at the end of each question.

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11 **(a)** Use a calculator to evaluate each of the following, giving your answer in standard form, correct to 3 significant figures.

(i) $7.6 \times 10^{-6} + 11.9^{-5}$

(ii) $2(5.68 \times 10^{9}) \div (9.34 \times 10^{-7})$

(iii) $\dfrac{8.15 \times 10^{-5} \times 1.17}{2.46 \times 10^{-8} \times 931 \times 10^{3}}$

(iv) $\dfrac{5(1.91^{3} - \sqrt[3]{685.1})^{2}}{17.1^{2} - 7.02 \times 10^{-2}}$

Answer (a) (i) ..... [1]

(ii) ..... [1]

(iii) ..... [1]

(iv) ..... [1]

(b) The ratio of the radii of two circles is 1 : 300 and the area of the smaller circle is 6.125×10^{-2} cm^2. 12

(i) Find the radius of the smaller circle.

(ii) Two pieces of wires are bent to make the two circles. Find the total length of wire needed.

Express each of the answers in standard form, correct to 3 significant figures.

Answer (b) (i) ..... cm [3]

(ii) ..... cm [3]

12 (a) The total monthly salary of a group of 2.8×10^8 workers surveyed was \$735 000 million.

(i) Express the total monthly salary of the workers in the form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer.

(ii) Calculate the average monthly salary per worker.

(b) The dimensions of a rectangular metal block are 3 cm by 5 cm by 8 cm. Calculate its volume in cubic metres. Give your answer in standard form.

(c) Given that $A = \sqrt{\frac{2pq}{r^3}}$, find the value of A when $p = 6.25 \times 10^{-8}$, $q = 8.14 \times 10^{-5}$ and $r = 3.91 \times 10^{-7}$. Express your answer in standard form, correct to 3 significant figures.

Answer *(a)* (i) \$ ..... [2]

(ii) \$ ..... [2]

(b) ..... m^3 [2]

(c) $A =$ ..... [2]

13 (a) The diameter of the Sun is 1 392 000 km. Write its diameter in standard form.

(b) The mass of the Sun is 1.99×10^{30} kg and the mass of the Earth is 5.976×10^{24} kg. Write down the ratio of the mass of the Earth to the mass of the Sun, giving your answer in the form $1 : n$.

(c) The moon revolves around the Earth at 36 800 km per hour. Find the distance travelled by the moon in a week. Give your answer in standard form, correct to 3 significant figures.

Answer (a) ..... km [1]

(b) ..... [3]

(c) ..... km [2]

14 (a) Calculate the value of $10^{2a+b-3c}$ given that $10^a = 2$, $10^b = 3$ and $10^c = 5$. Give your answer in standard form.

(b) Given that
$8 \times 10^3 + 9 \times 10^x + 3 \times 10^y + 2 \times 10^z = 8093.02$
where x, y and z are integers. Write down the values of x, y and z.

(c) The area of a rectangle is 5.32×10^{-6} m^2. Given that its length is 2.8×10^{-3} m, calculate
(i) its breadth,
(ii) its perimeter
expressing your answers in standard form.

Answer (a) ..... [3]

(b) x = ...

y = ...

z = ... [3]

(c) (i) ..... m [2]

(ii) ..... m [2]

15 The speed of light is 3×10^5 km/s while the speed of sound is 1.226×10^3 km/h. A thunderstorm occurred 150 km away from an observation tower.

(a) Find the time taken for the light from the lightning to travel 150 km.

(b) How many kilometres does sound travel in one second?

(c) How many seconds does it take for the sound of thunder to travel 150 km?

[Give each answer in standard form.]

Answer (a) ..... s [2]

(b) ..... km [2]

(c) ..... s [2]

Test 2: Standard Form

Section A

1. (a) $62\,800 = 6.28 \times 10\,000$
$= 6.28 \times 10^4$

Number of jumps
$62\,800 = 6.28 \times 10^4$

(b) $0.00901 = 9.01 \times \frac{1}{1000}$
$= 9.01 \times 10^{-3}$

Number of jumps
$0.00901 = 9.01 \times 10^{-3}$

Teacher's Tip

1. The standard form is expressed as:
$A \times 10^n$ where $1 \leq A < 10$ and n is an integer.
2. To express a number in standard form:
(a) Put the decimal point after the first non-zero digit.
(b) Multiply or divide the new number by powers of 10 to get a product equal to the original number.

2. $0.25 \times 16 \times 3.3$
$= 13.2$
$= 1.32 \times 10^1$
$\therefore 1.32 \times 10^1 = A \times 10^n$
$A = 1.32$ and $n = 1$

3. (a) (i) $540 = 5.4 \times 100$
$= 5.4 \times 10^2$

$540 = 5.4 \times 10^2$

(ii) $0.018 = 1.8 \times \frac{1}{100}$
$= 1.8 \times 10^{-2}$

$0.018 = 1.8 \times 10^{-2}$

(b) $540 \div 0.018$

$$= \frac{540}{0.018}$$

$$= \frac{5.4 \times 10^2}{1.8 \times 10^{-2}}$$

$$= \frac{5.4}{1.8} \times \frac{10^2}{10^{-2}}$$

$= 3 \times 10^{2-(-2)}$ ← Use $10^m \div 10^n = 10^{m-n}$

$= 3 \times 10^{2+2}$

$= 3 \times 10^4$

Teacher's Tip

For division of numbers in the standard form, deal with the numbers and the powers of 10 separately.

4. (a)

Teacher's Tip

Change the different powers of 10 to 10^{-12} as a basis of comparison.

$2.5 \times 10^{-11} = 25 \times 10^{-12}$ (Increase by 1, Decrease by 1: $2.5 \times 10^{-11} = 25 \times 10^{-12}$)

$1.3 \times 10^{-10} = 130 \times 10^{-12}$ (Increase by 2, Decrease by 2: $1.3 \times 10^{-10} = 130 \times 10^{-12}$)

Compare the above to 32×10^{-12}, we have $\mathbf{1.3 \times 10^{-10}}$, $\mathbf{32 \times 10^{-12}}$, $\mathbf{2.5 \times 10^{-11}}$.

(b) (i) 6158.02×10^{-7} $\approx \mathbf{6.2 \times 10^{-4}}$ (correct to 2 sig. fig.) (Decrease by 3, Increase by 3: 6158.02×10^{-7})

(ii) 0.000374×10^{10} $\approx \mathbf{3.7 \times 10^{6}}$ (correct to 2 sig. fig.) (Increase by 4, Decrease by 4: 0.000374×10^{10})

5. (a)

Teacher's Tip

For addition and subtraction of numbers in the standard form, rewrite the expression in the same power of 10 in each term before extracting the common factor.

$8.8 \times 10^{-5} - 9.2 \times 10^{-6}$

$= 88 \times 10^{-6} - 9.2 \times 10^{-6}$ (Increase by 1, Decrease by 1: $8.8 \times 10^{-5} = 88 \times 10^{-6}$)

$= (88 - 9.2) \times 10^{-6}$

$= 78.8 \times 10^{-6}$ (Decrease by 1, Increase by 1: $78.8 \times 10^{-6} = 7.88 \times 10^{-5}$)

$= \mathbf{7.88 \times 10^{-5}}$

(b) $(3.5 \times 10^6) \times (6 \times 10^5)$

$= (3.5 \times 6) \times (10^6 \times 10^5)$

$= 21 \times 10^{6+5}$ ← Use $10^m \times 10^n = 10^{m+n}$

$= 21 \times 10^{11}$

$= \mathbf{2.1 \times 10^{12}}$ (Decrease by 1, Increase by 1: $21 \times 10^{11} = 2.1 \times 10^{12}$)

Teacher's Tip

For multiplication of numbers in standard form, multiply the numbers and the powers of 10 separately.

6. (a) $m = 1.2 \times 10^2$ (Given)

$= 1.2 \times 100$

$= 120$

$\sqrt{m+1} = \sqrt{120+1}$

$= \sqrt{121}$

$= \sqrt{11^2}$

$= 11$

$= \mathbf{1.1 \times 10^1}$

(b) $\frac{33.6 \times 12}{6.4 \times 35} = 1.8$ (Given)

$$\frac{3.36 \times 1.2}{64 \times 3.5} = \frac{(33.6 \times 10^{-1}) \times (12 \times 10^{-1})}{(6.4 \times 10^1) \times (35 \times 10^{-1})}$$

$$= \left(\frac{33.6 \times 12}{6.4 \times 35}\right) \times \left(\frac{10^{-1} \times 10^{-1}}{10^1 \times 10^{-1}}\right)$$

$= 1.8 \times 10^{-1-1}$

$= \mathbf{1.8 \times 10^{-2}}$

7. $x = 1.5 \times 10^6$ (Given)

(a) $8x = 8 \times (1.5 \times 10^6)$

$= (8 \times 1.5) \times 10^6$

$= 12 \times 10^6$

$= \mathbf{1.2 \times 10^7}$

(b) $\frac{9}{x} = \frac{9}{1.5 \times 10^6}$

$= \frac{9}{1.5} \times \frac{1}{10^6}$ ← $\frac{1}{10^6} = 10^{-6}$

$= \mathbf{6 \times 10^{-6}}$

(c) $\frac{450}{x^2} = \frac{450}{(1.5 \times 10^6)^2}$ (Use $(10^m)^n = 10^{mn}$: $(1.5 \times 10^6)^2 = 1.5^2 \times (10^6)^2 = 2.25 \times 10^{6 \times 2} = 2.25 \times 10^{12}$)

$= \frac{450}{2.25 \times 10^{12}}$

$= \frac{450}{2.25} \times \frac{1}{10^{12}}$

$= 200 \times 10^{-12}$ (Decrease by 2, Increase by 2: $200 \times 10^{-12} = 2 \times 10^{-10}$)

$= \mathbf{2 \times 10^{-10}}$

8. (a) $\frac{1}{2} \times 10^8 + 9 \times 10^7$
$= 0.5 \times 10^8 + 9 \times 10^7$
$= 5 \times 10^7 + 9 \times 10^7$
$= (5 + 9) \times 10^7$
$= 14 \times 10^7$
$= \mathbf{1.4 \times 10^8}$

Increase by 1, Decrease by 1: $0.5 \times 10^8 = 5 \times 10^7$

Decrease by 1, Increase by 1: $14 \times 10^7 = 1.4 \times 10^8$

(b) $10^{-4} - 3.1 \times 10^{-5}$
$= 1 \times 10^{-4} - 3.1 \times 10^{-5}$
$= 10 \times 10^{-5} - 3.1 \times 10^{-5}$
$= (10 - 3.1) \times 10^{-5}$
$= \mathbf{6.9 \times 10^{-5}}$

$10^{-4} = 1 \times 10^{-4}$

Increase by 1, Decrease by 1: $1 \times 10^{-4} = 10 \times 10^{-5}$

(c) $3(0.025 \times 10^5) - 0.65 \times 10^3$
$= (3 \times 0.025) \times 10^5 - 0.65 \times 10^3$
$= 0.075 \times 10^5 - 0.65 \times 10^3$
$= 7.5 \times 10^3 - 0.65 \times 10^3$
$= (7.5 - 0.65) \times 10^3$
$= \mathbf{6.85 \times 10^3}$

Increase by 2, Decrease by 2: $0.075 \times 10^5 = 7.5 \times 10^3$

(d) $\frac{1.33 \times 10^6}{7 \times 10^{-1}}$
$= \frac{1.33}{7} \times \frac{10^6}{10^{-1}}$
$= 0.19 \times 10^{6-(-1)}$
$= 0.19 \times 10^7$
$= \mathbf{1.9 \times 10^6}$

Use $10^m \div 10^n = 10^{m-n}$

Increase by 1, Decrease by 1: $0.19 \times 10^7 = 1.9 \times 10^6$

9. $p = 4 \times 10^6$, $q = 5 \times 10^{-5}$, $r = 3 \times 10^8$ (Given)

(a) $pq = (4 \times 10^6) \times (5 \times 10^{-5})$
$= (4 \times 5) \times (10^6 \times 10^{-5})$
$= 20 \times 10^{6+(-5)}$
$= 20 \times 10^{6-5}$
$= 20 \times 10^1$
$= \mathbf{2 \times 10^2}$

Use $10^m \times 10^n = 10^{m+n}$

Decrease by 1, Increase by 1: $20 \times 10^1 = 2 \times 10^2$

(b) $p + \frac{1}{q} = 4 \times 10^6 + \frac{1}{5 \times 10^{-5}}$
$= 4 \times 10^6 + \frac{1}{5} \times \frac{1}{10^{-5}}$
$= 4 \times 10^6 + 0.2 \times 10^5$
$= 40 \times 10^5 + 0.2 \times 10^5$
$= (40 + 0.2) \times 10^5$
$= 40.2 \times 10^5$
$= \mathbf{4.02 \times 10^6}$

Increase by 1, Decrease by 1: $4 \times 10^6 = 40 \times 10^5$

Decrease by 1, Increase by 1: $40.2 \times 10^5 = 4.02 \times 10^6$

(c) $\frac{r}{q} = \frac{3 \times 10^8}{5 \times 10^{-5}}$
$= \frac{3}{5} \times \frac{10^8}{10^{-5}}$
$= 0.6 \times 10^{8-(-5)}$
$= 0.6 \times 10^{8+5}$
$= 0.6 \times 10^{13}$
$= \mathbf{6 \times 10^{12}}$

Use $10^m \div 10^n = 10^{m-n}$

Increase by 1, Decrease by 1: $0.6 \times 10^{13} = 6 \times 10^{12}$

10. Diameter of larger disc $= 1.2 \times 10^2$ cm Given
Diameter of smaller disc $= 5 \times 10^{-3}$ cm Given

(a) Radius of the larger disc
$= \frac{1.2 \times 10^2}{2}$
$= \frac{1.2}{2} \times 10^2$
$= 0.6 \times 10^2$
$= \mathbf{6 \times 10^1}$ cm

Increase by 1, Decrease by 1: $0.6 \times 10^2 = 6 \times 10^1$

(b) $\frac{\text{Radius of the larger disc}}{\text{Radius of the smaller disc}}$
$= \frac{1.2 \times 10^2}{5 \times 10^{-3}}$
$= \frac{1.2}{5} \times \frac{10^2}{10^{-3}}$
$= 0.24 \times 10^{2-(-3)}$
$= 0.24 \times 10^{2+3}$
$= 0.24 \times 10^5$
$= \mathbf{2.4 \times 10^4}$

Use $10^m \div 10^n = 10^{m-n}$

Increase by 1, Decrease by 1: $0.24 \times 10^5 = 2.4 \times 10^4$

Section B

11. (a) (i) $7.6 \times 10^{-6} + 11.9^{-5}$
$\approx \mathbf{1.18 \times 10^{-5}}$ (correct to 3 sig. fig.)

(ii) $2(5.68 \times 10^9) \div (9.34 \times 10^{-7})$
$\approx \mathbf{1.22 \times 10^{16}}$ (correct to 3 sig. fig.)

(iii) $\frac{8.15 \times 10^{-5} \times 1.17}{2.46 \times 10^{-8} \times 931 \times 10^3}$
$\approx \mathbf{4.16 \times 10^{-3}}$ (correct to 3 sig. fig.)

(iv) $\frac{5(1.91^3 - \sqrt[3]{685.1})^2}{17.1^2 - 7.02 \times 10^{-2}}$
$\approx \mathbf{5.84 \times 10^{-2}}$ (correct to 3 sig. fig.)

(b) (i) Let the radius of the smaller circle and larger circle be r_1 and r_2 respectively.
Area of smaller circle
$= 6.125 \times 10^{-2}$ cm^2 Given
$\pi r_1^2 = 6.125 \times 10^{-2}$
$r_1 = \sqrt{\frac{6.125 \times 10^{-2}}{\pi}}$
$= 1.396 \times 10^{-1}$
$\approx 1.40 \times 10^{-1}$ cm (correct to 3 sig. fig.)
$\therefore$ the radius of the smaller circle is $\mathbf{1.40 \times 10^{-1}}$ cm.

Area of a circle $= \pi r^2$ where r = radius.

(ii) $\frac{r_1}{r_2} = \frac{1}{300}$ Given
$r_2 = 300 r_1$
$= 300 \times (1.396 \times 10^{-1})$
$= 4.188 \times 10^1$ cm

Total length of wire needed
= Circumference of smaller circle + Circumference of larger circle
$= 2\pi r_1 + 2\pi r_2$
$= 2\pi(1.396 \times 10^{-1}) + 2\pi(4.188 \times 10^{1})$
$\approx \mathbf{2.64 \times 10^{2}}$ cm (correct to 3 sig. fig.)

Circumference of a circle $= 2\pi r$ where r = radius.

12. (a) (i) Total monthly salary
= \$735 000 million
$= \$(7.35 \times 10^{5} \times 10^{6})$
$= \$(7.35 \times 10^{5+6})$
$= \$(7.35 \times 10^{11})$

1 million = 1 000 000 $= 10^{6}$

Use $10^{m} \times 10^{n} = 10^{m+n}$

(ii) Average monthly salary per worker
$= \dfrac{\$(7.35 \times 10^{11})}{2.8 \times 10^{8}}$
$= \$2625$

(b) Volume of block
$= (3 \times 10^{-2}) \times (5 \times 10^{-2}) \times (8 \times 10^{-2})$
$= \mathbf{1.2 \times 10^{-4}\ cm^3}$

100 cm = 1 m
1 cm $= \dfrac{1}{100} = \dfrac{1}{10^2} = 10^{-2}$ m

(c) $A = \sqrt{\dfrac{2pq}{r^3}}$
$= \sqrt{\dfrac{2 \times 6.25 \times 10^{-8} \times 8.14 \times 10^{-5}}{(3.91 \times 10^{-7})^3}}$
$\approx \mathbf{1.30 \times 10^{4}}$ (correct to 3 sig. fig.)

13. (a) Diameter = 1 392 000
$= \mathbf{1.392 \times 10^{6}}$ km

(b) Mass of Earth : Mass of Sun = 1 : n
$\dfrac{5.976 \times 10^{24}\ \text{kg}}{1.99 \times 10^{30}\ \text{kg}} = \dfrac{1}{n}$
$n = \dfrac{1.99 \times 10^{30}}{5.976 \times 10^{24}}$
$\approx 333\,000$ (correct to 3 sig. fig.)
$\therefore$ required ratio = **1 : 333 000.**

(c) In one hour, the moon travels 36 800 km. Given
Distance travelled by the moon in one week
= 168 × 36 800
= 6 182 400
$\approx \mathbf{6.18 \times 10^{6}}$ km (correct to 3 sig. fig.)

1 week = 7 days
= 7 × 24 h
= 168 h

14. (a) $10^a = 2$, $10^b = 3$, $10^c = 5$ Given
$10^{2a+b-3c}$
$= 10^{2a} \times 10^{b} \div 10^{3c}$
$= (10^a)^2 \times 10^{b} \div (10^c)^3$
$= \dfrac{2^2 \times 3}{5^3}$
$= 0.096$
$= \mathbf{9.6 \times 10^{-2}}$

Use $10^{m+n} = 10^m \times 10^n$ and $10^{m-n} = 10^m \div 10^n$

Use $10^{mn} = (10^m)^n$.

(b) $8093.02 = 8000 + 90 + 3 + \dfrac{2}{100}$
$= 8 \times 10^3 + 9 \times 10^1 + 3 \times 10^0 + 2 \times 10^{-2}$
$= 8 \times 10^3 + 9 \times 10^x + 3 \times 10^y + 2 \times 10^z$
$\therefore x = 1, y = 0$ and $z = -2$.

(c) (i) Breadth of rectangle
$= \dfrac{5.32 \times 10^{-6}\ \text{m}^2}{2.8 \times 10^{-3}\ \text{m}}$
$= \mathbf{1.9 \times 10^{-3}}$ m

Area of rectangle = Length × Breadth
Breadth = $\dfrac{\text{Area}}{\text{Length}}$

(ii) Perimeter of rectangle
$= 2(2.8 \times 10^{-3} + 1.9 \times 10^{-3})$
$= \mathbf{9.4 \times 10^{-3}}$ m

Perimeter of rectangle = 2 (Length + Breadth)

15. Speed of light = 3×10^5 km/s
Speed of sound = 1.226×10^3 km/h } Given

(a) Time taken = $\dfrac{150\ \text{km}}{3 \times 10^5\ \text{km/s}}$
$= \mathbf{5 \times 10^{-4}}$ s

Time = $\dfrac{\text{Distance}}{\text{Speed}}$

(b) In 1 hour, (3600 s) sound travels 1.226×10^3 km.
In 1 second, sound travels
$= \dfrac{1.226 \times 10^3}{3600}$
≈ 0.3406
$= \mathbf{3.41 \times 10^{-1}}$ km (correct to 3 sig. fig.)

1 h = 60 min
= 60 × 60 s
= 3600 s

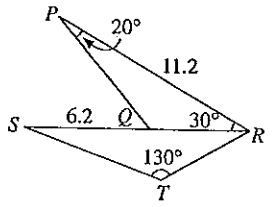
(c) Time taken
$= \dfrac{150\ \text{km}}{3.406 \times 10^{-1}\ \text{km/s}}$
$\approx \mathbf{4.40 \times 10^{2}}$ s (correct to 3 sig. fig.)

Time = $\dfrac{\text{Distance}}{\text{Speed}}$
Speed of sound = 3.406×10^{-1} km/s

Test 3: Congruence and Similarity

Section A

1.



(a) $S\hat{R}T = P\hat{R}Q$
$= 30°$

Teacher's Tip

$\triangle PQR \equiv \triangle STR$ (Given)

- Use a matching diagram to match the corresponding vertices.
- The symbol '$\equiv$' means 'is congruent to'.