Due date	Thursday 18th January 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA1.1

Name :

HAA1.1

Question 1 Simplify √891	**Question 2** Simplify √176	**Question 3** A car bought for £36000 depreciates in value by 8% each year. Write down a formula for the value of the car v, after t years	**Question 4** £6000 is invested with an interest rate of 6% per annum. Write a formula for the value of the investment v, after t years
Question 5 Use the formula $s = \frac{1}{2}(u + v)t$ to find u when s = 360, v = 20 and t = 30	**Question 6** Use the formula $s = \frac{1}{2}(u + v)t$ to find s when u = 16, v = 16 and t = 90	**Question 7** Evaluate $32^{\frac{2}{5}}$	**Question 8** Evaluate $27^{\frac{2}{3}}$
Question 9 A block has a mass of 800g and a volume of 80 cm^3. Calculate the density.	**Question 10** A block has a mass of 160g and a density of 40 g/cm^3. Calculate the volume.	**Question 11** Find the nth term of 1, 7, 17, 31,...	**Question 12** Find the nth term of 1, 4, 9, 16,...
Question 13 Sketch the curve $y = x^2$	**Question 14** Sketch the curve y = sin x	**Question 15** Find the equation of the line with gradient 4 passing through (-1 , -6)	**Question 16** Find the equation of the line with gradient -2 passing through (-2 , 8)
Question 17 Work out $4.2 \times 10^5 + 8.6 \times 10^4$	**Question 18** Work out $4.2 \times 10^5 + 5.7 \times 10^4$	**Question 19** Express $x^2 + 10x + 30$ in completed square form	**Question 20** Express $x^2 - 4x + 7$ in completed square form

Question 21

What does ‘significant figure’ mean?

Score

Due date	Thursday 25th January 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA1.2

Name :

HAA1.2

Question 1 Simplify √486	**Question 2** Simplify √350	**Question 3** A car bought for £31000 depreciates in value by 2% each year. Write down a formula for the value of the car v, after t years	**Question 4** A car bought for £34000 depreciates in value by 3% each year. Write down a formula for the value of the car v, after t years
Question 5 Use the formula s = ½(u + v)t to find s when u = 18, v = 14 and t = 100	**Question 6** Use the formula s = ½(u + v)t to find u when s = 1170, v = 8 and t = 90	**Question 7** Evaluate 7^0	**Question 8** Evaluate $125^{\frac{1}{3}}$
Question 9 A block has a mass of 200g and a density of 100 g/cm^3. Calculate the volume.	**Question 10** A block has a mass of 90g and a density of 60 g/cm^3. Calculate the volume.	**Question 11** Find the nth term of 5, 16, 33, 56,...	**Question 12** Find the nth term of 2, 10, 24, 44,...
Question 13 Sketch the curve $y = x^3$	**Question 14** Sketch the curve y = cos x	**Question 15** Find the equation of the line with gradient 2 passing through (1 , 6)	**Question 16** Find the equation of the line with gradient 2 passing through (3 , 16)
Question 17 Work out $5.3 \times 10^4 + 4.8 \times 10^3$	**Question 18** Work out $2.5 \times 10^5 - 6.3 \times 10^4$	**Question 19** Express $x^2 + 2x + 2$ in completed square form	**Question 20** Express $x^2 + 4x + 3$ in completed square form

Question 21
What does 'direct proportion' mean?

Score

Due date	Thursday 1st February 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA1.3

Name :

HAA1.3

Question 1 Simplify √486	**Question 2** Simplify √1134	**Question 3** £9000 is invested with an interest rate of 6.5% per annum. Write a formula for the value of the investment v, after t years	**Question 4** £9000 is invested with an interest rate of 7.5% per annum. Write a formula for the value of the investment v, after t years
Question 5 Use the formula $s = \frac{1}{2}(u + v)t$ to find v when s = 1000, v = 12 and t = 100	**Question 6** Use the formula $s = \frac{1}{2}(u + v)t$ to find s when u = 20, v = 10 and t = 70	**Question 7** Evaluate $9^{\frac{3}{2}}$	**Question 8** Evaluate $16^{\frac{5}{4}}$
Question 9 A block has a volume of $60cm^3$ and a density of 40 g/cm^3. Calculate the mass.	**Question 10** A block has a mass of 100g and a volume of 20 cm^3. Calculate the density.	**Question 11** Find the nth term of 2, 8, 18, 32,...	**Question 12** Find the nth term of 1, 7, 17, 31,...
Question 13 Sketch the curve $y = -x^2$	**Question 14** Sketch the curve y = 2x - 4	**Question 15** Find the equation of the line with gradient 5 passing through (2 , 13)	**Question 16** Find the equation of the line with gradient 4 passing through (-1 , 1)
Question 17 Work out $5.1 \times 10^4 - 3.8 \times 10^3$	**Question 18** Work out $5.2 \times 10^4 + 2.4 \times 10^3$	**Question 19** Express $x^2 + 6x + 10$ in completed square form	**Question 20** Express $x^2 - 4x + 13$ in completed square form

Question 21

What is a prism?

Score

Due date	Thursday 8th February 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA1.4

Name :

HAA1.4

Question 1 Simplify √192	**Question 2** Simplify √125	**Question 3** £4000 is invested with an interest rate of 7% per annum. Write a formula for the value of the investment v, after t years	**Question 4** £5000 is invested with an interest rate of 9% per annum. Write a formula for the value of the investment v, after t years
Question 5 Use the formula $s = \frac{1}{2}(u + v)t$ to find u when s = 1520, v = 18 and t = 80	**Question 6** Use the formula $s = \frac{1}{2}(u + v)t$ to find s when u = 2, v = 20 and t = 30	**Question 7** Evaluate $36^{-\frac{3}{2}}$	**Question 8** Evaluate $4^{\frac{5}{2}}$
Question 9 A block has a mass of 780g and a volume of 60 cm^3. Calculate the density.	**Question 10** A block has a mass of 100g and a volume of 50 cm^3. Calculate the density.	**Question 11** Find the nth term of 0, 2, 6, 12,...	**Question 12** Find the nth term of -2, -2, 0, 4,...
Question 13 Sketch the curve $y = \frac{1}{x^2}$	**Question 14** Sketch the curve y = 2 - x	**Question 15** Find the equation of the line with gradient -3 passing through (2 , -5)	**Question 16** Find the equation of the line with gradient -3 passing through (-2 , 9)
Question 17 Work out $2 \times 10^5 + 2 \times 10^4$	**Question 18** Work out $4.8 \times 10^5 + 8.6 \times 10^4$	**Question 19** Express $x^2 - 2x - 4$ in completed square form	**Question 20** Express $x^2 + 6x + 3$ in completed square form

Question 21
What does perpendicular mean?

Score

Due date	Thursday 22nd February 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA1.5

Name :

HAA1.5

Question 1 Simplify √405	**Question 2** Simplify √704	**Question 3** £10000 is invested with an interest rate of 3% per annum. Write a formula for the value of the investment v, after t years	**Question 4** A car bought for £46000 depreciates in value by 7% each year. Write down a formula for the value of the car v, after t years
Question 5 Use the formula s = ½(u + v)t to find u when s = 280, v = 20 and t = 20	**Question 6** Use the formula s = ½(u + v)t to find u when s = 800, v = 12 and t = 80	**Question 7** Evaluate $4^{-\frac{3}{2}}$	**Question 8** Evaluate $81^{\frac{3}{4}}$
Question 9 A block has a mass of 700g and a density of 7 g/cm^3. Calculate the volume.	**Question 10** A block has a volume of 80cm^3 and a density of 2.5 g/cm^3. Calculate the mass	**Question 11** Find the nth term of 0, 6, 18, 36,...	**Question 12** Find the nth term of 5, 14, 27, 44,...
Question 13 Sketch the curve y = sin x	**Question 14** Sketch the curve y = -x^3	**Question 15** Find the equation of the line with gradient 3 passing through (1 , 8)	**Question 16** Find the equation of the line with gradient 5 passing through (-2 , -7)
Question 17 Work out $5.2 \times 10^4 + 4.2 \times 10^3$	**Question 18** Work out $2.1 \times 10^4 - 6.9 \times 10^3$	**Question 19** Express x^2 + 8x + 26 in completed square form	**Question 20** Express x^2 + 4x - 4 in completed square form

Question 21
What is a trapezium?

Score

Due date	Thursday 29th February 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.1

Name :

HAA2.1

Question 1 Simplify $\sqrt{224} + 2\sqrt{14}$	**Question 2** Simplify $\sqrt{896} + 6\sqrt{14}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 + 12x + 36$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 - 6x$
Question 5 Use the formula $v = u + at$ to find a when $v = -4$, $u = 16$ and $t = 10$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find s when $v = 4$, $u = 2$ and $a = 1$	**Question 7** Expand and simplify $(x + 2)(x + 3)(x + 1)$	**Question 8** Expand and simplify $(x - 1)(x + 2)(x - 3)$
Question 9 Write down the exact value of $\tan 45^o$	**Question 10** Write down the exact value of $\sin 30^o$	**Question 11** A block has a mass of 480g and a volume of 80 cm^3. Calculate the density.	**Question 12** A pressure of 10 N/m^2 results from a force of 140 N acting over an area x. Find x
Question 13 If $f(x) = 19 - x$ find the value of $f(0.5)$	**Question 14** If $f(x) = 30 - 4x$ find the value of $f(4)$	**Question 15** If the nth term of a sequence is $\frac{3n+2}{7n}$ what is the 7th term?	**Question 16** If the nth term of a sequence is $\frac{7n}{9n+5}$ what is the 8th term?
Question 17 Work out $8 \times 10^3 \times 8 \times 10^5$	**Question 18** Work out $(1.8 \times 10^8) \div (3 \times 10^3)$	**Question 19** Solve simultaneously $6x + 6y = 60$ and $4x + 2y = 30$	**Question 20** Solve simultaneously $4x + 6y = 24$ and $2x + 2y = 10$

Question 21

What does 'significant figure' mean?

Score

Due date	Thursday 7th March 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.2

Name :

HAA2.2

Question 1 Simplify $\sqrt{686} + 4\sqrt{14}$	**Question 2** Simplify $\sqrt{150} + 4\sqrt{6}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 - 6x + 16$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 + 4x + 5$
Question 5 Use the formula $v = u + at$ to find a when $v = 50$, $u = 14$ and $t = 12$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find v when $u = 10$, $a = -2$ and $s = 24$	**Question 7** Expand and simplify $(x - 2)(x + 3)(x - 1)$	**Question 8** Expand and simplify $(x + 2)(x + 2)(x + 4)$
Question 9 Write down the exact value of $\tan 0^o$	**Question 10** Write down the exact value of $\tan 60^o$	**Question 11** A block has a volume of $8\ cm^3$ and a density of $90\ g/cm^3$. Calculate the mass.	**Question 12** A force of 117 N acts over an area of $13\ m^2$. What is the pressure?
Question 13 If $f(x) = 20 + 3x^2$ find the value of $f(1)$	**Question 14** If $f(x) = 26 - 4x$ find the value of $f(2)$	**Question 15** If the nth term of a sequence is $\frac{5n}{9n-1}$ what is the 12th term?	**Question 16** If the nth term of a sequence is $\frac{4n}{7n}$ what is the 9th term?
Question 17 Work out $8 \times 10^2 \times 6 \times 10^3$	**Question 18** Work out $(1.2 \times 10^7) \div (6 \times 10^5)$	**Question 19** Solve simultaneously $5x - 4y = 2$ and $3x - 4y = -2$	**Question 20** Solve simultaneously $x + y = 7$ and $3x - y = 9$

Question 21
What does 'direct proportion' mean?

Score

Due date	Thursday 14th March 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.3

Name :

HAA2.3

Question 1 Simplify $\sqrt{250} + 6\sqrt{10}$	**Question 2** Simplify $\sqrt{486} + 5\sqrt{6}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 + 18x + 70$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 - 10x + 30$
Question 5 Use the formula $v = u + at$ to find v when $u = 12$, $a = 0.5$ and $t = 2$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find a when $u = 5$, $v = 10$ and $s = 5$	**Question 7** Expand and simplify $(x + 1)(x + 2)(x + 2)$	**Question 8** Expand and simplify $(x - 2)(x - 3)(x + 2)$
Question 9 Write down the exact value of $\sin 90^o$	**Question 10** Write down the exact value of $\cos 30^o$	**Question 11** A block has a mass of 800g and a density of 100 g/cm^3. Calculate the volume.	**Question 12** A pressure of 3 N/m^2 results from a force of 30 N acting over an area x. Find x
Question 13 If $f(x) = 22 - x$ find the value of $f(-2)$	**Question 14** If $f(x) = 21 - 2x$ find the value of $f(-4)$	**Question 15** If the nth term of a sequence is $\frac{3n}{12n+1}$ what is the 7th term?	**Question 16** If the nth term of a sequence is $\frac{5n}{7n+3}$ what is the 8th term?
Question 17 Work out $6 \times 10^2 \times 4 \times 10^2$	**Question 18** Work out $(3.6 \times 10^4) \div (6 \times 10)$	**Question 19** Solve simultaneously $x + y = 9$ and $4x + 5y = 40$	**Question 20** Solve simultaneously $3x - 4y = -5$ and $4x - 6y = -10$

Question 21

What is a vertex?

Score

Due date	Thursday 21st March 2024
Name	

Trinity Academy Grammar

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.4

Name :

HAA2.4

Question 1 Simplify $\sqrt{192} + 8\sqrt{3}$	**Question 2** Simplify $\sqrt{72} + 5\sqrt{2}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 + 4x + 12$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 + 2x + 6$
Question 5 Use the formula $v = u + at$ to find u when $v = -26$, $a = -5$ and $t = 6$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find v when $u = 8$, $a = 4$ and $s = 10$	**Question 7** Expand and simplify $(x + 2)(x + 2)(x + 4)$	**Question 8** Expand and simplify $(x - 2)(x + 3)(x + 4)$
Question 9 Write down the exact value of $\sin 45^o$	**Question 10** Write down the exact value of $\sin 0^o$	**Question 11** A block has a mass of 360g and a density of 60 g/cm^3. Calculate the volume.	**Question 12** A pressure of 5 N/m^2 results from a force of 50 N acting over an area x. Find x
Question 13 If $f(x) = 3x + 7$ find the value of $f(1)$	**Question 14** If $f(x) = 25 + 2x^2$ find the value of $f(-2)$	**Question 15** If the nth term of a sequence is $\frac{3n+1}{2n+1}$ what is the 10th term?	**Question 16** If the nth term of a sequence is $\frac{7n-2}{7n}$ what is the 6th term?
Question 17 Work out $6 \times 10^4 \times 6 \times 10$	**Question 18** Work out $(1.6 \times 10^9) \div (2 \times 10^3)$	**Question 19** Solve simultaneously $x + y = 5$ and $2x + 3y = 13$	**Question 20** Solve simultaneously $4x + 5y = 36$ and $4x + 2y = 24$

Question 21
What does perpendicular mean?

Score

Due date	Thursday 28th March 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.5

Name :

HAA2.5

Question 1 Simplify $\sqrt{891} + 9\sqrt{11}$	**Question 2** Simplify $\sqrt{48} + 7\sqrt{3}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 + 14x + 45$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 + 12x + 44$
Question 5 Use the formula $v = u + at$ to find v when $u = 4$, $a = -3$ and $t = 8$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find a when $u = 10$, $v = 2$ and $s = 6$	**Question 7** Expand and simplify $(x + 1)(x + 2)(x - 1)$	**Question 8** Expand and simplify $(x + 2)(x + 2)(x + 3$
Question 9 Write down the exact value of $\tan 45^o$	**Question 10** Write down the exact value of $\cos 90^o$	**Question 11** A block has a mass of 140g and a volume of 70 cm^3. Calculate the density.	**Question 12** Find the force applied over an area of 14 m^2 that is needed to result in a pressure of 8 N/m^2
Question 13 If $f(x) = 29 - 3x$ find the value of $f(2)$	**Question 14** If $f(x) = 28 - x$ find the value of $f(2)$	**Question 15** If the nth term of a sequence is $\frac{6n}{10n-5}$ what is the 8th term?	**Question 16** If the nth term of a sequence is $\frac{n^2}{n+1}$ what is the 6th term?
Question 17 Work out $5 \times 10^5 \times 8 \times 10^3$	**Question 18** Work out $(7.2 \times 10^6) \div (8 \times 10^3)$	**Question 19** Solve simultaneously $x + y = 2$ and $2x + 3y = 9$	**Question 20** Solve simultaneously $6x - 6y = 18$ and $3x + 2y = 19$

Question 21
What is a trapezium?

Score

Due date	Thursday 11th April 2024
Name	

GCSE Maths homework 11r2

Year 11 terms 3 & 4

Knowledge Check

Homework Sheet HAA2.6

Name :

HAA2.6

Question 1 Simplify $\sqrt{1134} + 2\sqrt{14}$	**Question 2** Simplify $\sqrt{112} + 3\sqrt{7}$	**Question 3** Find the coordinates of the vertex of the graph of $y = x^2 + 20x + 96$	**Question 4** Find the coordinates of the vertex of the graph of $y = x^2 + 6x + 1$
Question 5 Use the formula $v = u + at$ to find u when $v = 28$, $a = 7$ and $t = 2$	**Question 6** Use the formula $v^2 = u^2 + 2as$ to find a when $u = 2$, $v = 12$ and $s = 10$	**Question 7** Expand and simplify $(x + 2)(x + 2)(x + 1)$	**Question 8** Expand and simplify $(x - 2)(x + 3)(x + 1)$
Question 9 Write down the exact value of $\sin 60^o$	**Question 10** Write down the exact value of $\sin 45^o$	**Question 11** A block has a mass of 140g and a density of 70 g/cm^3. Calculate the volume.	**Question 12** A force of 63 N acts over an area of 7 m^2. What is the pressure?
Question 13 If $f(x) = 28 + 4x^2$ find the value of f(-5)	**Question 14** If $f(x) = 27 + 3x^2$ find the value of f(4)	**Question 15** If the nth term of a sequence is $\frac{n-1}{n+1}$ what is the 11th term?	**Question 16** If the nth term of a sequence is $\frac{n+1}{3n}$ what is the 10th term?
Question 17 Work out $7 \times 10^3 \times 3 \times 10^4$	**Question 18** Work out $(8 \times 10^6) \div (4 \times 10^4)$	**Question 19** Solve simultaneously $x + y = 10$ and $2x + 5y = 35$	**Question 20** Solve simultaneously $4x - 3y = 11$ and $4x + 3y = 29$

Question 21
How many sides has a dodecagon?

Score