

Due date	Thursday 18 th January 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA3.1

Name :

HAA3.1

Question 1 Simplify $8 \times 5\sqrt{6}$	Question 2 Simplify $2\sqrt{5} \times 5\sqrt{5}$	Question 3 Find the nth term: 7, 12, 17, 22	Question 4 Find the nth term $\frac{1}{3}, \frac{2}{4}, \frac{3}{5}, \dots$
Question 5 Solve $\cos x = 0.6$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 6 Solve $\cos x = 0.96$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 7 Find the inverse function $f(x) = 3x - 1$	Question 8 Find the inverse function $f(x) = 3(x + 2)$
Question 9 Find the next term in the sequence 11000, 1100, 110, ...	Question 10 Find the next term in the sequence 1, 6, 36, ...	Question 11 Find the equation of the line passing through (-3, 12) and (3, -12)	Question 12 Find the equation of the line passing through (-4, 9) and (1, -1)
Question 13 Solve using the quadratic formula $3x^2 + 8x - 2 = 0$	Question 14 Solve using the quadratic formula $4x^2 + x - 1 = 0$	Question 15 Factorise $x^2 + 3x + 2$	Question 16 Factorise $10x^2 + 13x + 4$
Question 17 Simplify $\frac{x}{3} + \frac{2x}{5}$	Question 18 Simplify $\frac{x}{3} + \frac{x+1}{5}$	Question 19 Write down the first three terms of the sequence $x_1 = 3 \quad x_{n+1} = x_n - 1$	Question 20 Write down the first three terms of the sequence $x_1 = 4 \quad x_{n+1} = 2x_n - 1$

Question 21

What does 'estimate' mean?

Score

Due date	Thursday 25 th January 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA3.2

Name :

HAA3.2

Question 1 Simplify $8 \times 2\sqrt{2}$	Question 2 Simplify $5\sqrt{5} \times 6\sqrt{5}$	Question 3 Find the nth term: 12, 22, 32, 42	Question 4 Find the nth term $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \dots$
Question 5 Solve $\cos x = 0.028$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 6 Solve $\tan x = -0.788$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 7 Find the inverse function $f(x) = \frac{x}{2}$	Question 8 Find the inverse function $f(x) = \frac{x+2}{3}$
Question 9 Find the next term in the sequence 5, 15, 45, ...	Question 10 Find the next term in the sequence 6, 18, 54, ...	Question 11 Find the equation of the line passing through (-2, -3) and (3, 7)	Question 12 Find the equation of the line passing through (1, -6) and (5, -22)
Question 13 Solve using the quadratic formula $5x^2 - 6x - 4 = 0$	Question 14 Solve using the quadratic formula $3x^2 + x - 3 = 0$	Question 15 Factorise $x^2 + 9x + 18$	Question 16 Factorise $20x^2 + 19x + 3$
Question 17 Simplify $\frac{x+1}{3} - \frac{x}{4}$	Question 18 Simplify $\frac{4x}{3} - \frac{x+1}{5}$	Question 19 Write down the first three terms of the sequence $x_1 = 3 \quad x_{n+1} = -3x_n - 4$	Question 20 Write down the first three terms of the sequence $x_1 = 1 \quad x_{n+1} = 2x_n + 4$

Question 21
What is a 'sector'?

Score

Due date	Thursday 1 st February 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA3.3

Name :

HAA3.3

Question 1 Simplify $9 \times 5\sqrt{3}$	Question 2 Simplify $3\sqrt{3} \times 6\sqrt{3}$	Question 3 Find the nth term: 2, 7, 12, 17	Question 4 Find the nth term $\frac{3}{5}, \frac{5}{9}, \frac{7}{13}, \dots$
Question 5 Solve $\sin x = 0.828$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 6 Solve $\cos x = 0.531$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 7 Find the inverse function $f(x) = \frac{x}{2} + 3$	Question 8 Find the inverse function $f(x) = \frac{2}{x+3}$
Question 9 Find the next term in the sequence 4, 16, 64, ...	Question 10 Find the next term in the sequence 4, 8, 16, ...	Question 11 Find the equation of the line passing through (1, 10) and (-1, 0)	Question 12 Find the equation of the line passing through (-1, -3) and (3, 5)
Question 13 Solve using the quadratic formula $x^2 + 9x + 17 = 0$	Question 14 Solve using the quadratic formula $2x^2 - 8x - 2 = 0$	Question 15 Factorise $x^2 - 5x + 4$	Question 16 Factorise $8x^2 + 10x - 7$
Question 17 Simplify $\frac{x+1}{3} - \frac{x+1}{4}$	Question 18 Simplify $\frac{x-2}{3} - \frac{x-1}{5}$	Question 19 Write down the first three terms of the sequence $x_1 = 2 \quad x_{n+1} = -x_n - 5$	Question 20 Write down the first three terms of the sequence $x_1 = 1 \quad x_{n+1} = -x_n - 1$

Question 21

What is an 'alternate angle'?

Score

Due date	Thursday 8 th February 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA3.4

Name :

HAA3.4

Question 1 Simplify $2 \times 9\sqrt{10}$	Question 2 Simplify $3\sqrt{6} \times 6\sqrt{6}$	Question 3 Find the nth term: 17, 29, 41, 53	Question 4 Find the nth term $\frac{5}{10}, \frac{8}{12}, \frac{11}{14}, \dots$
Question 5 Solve $\cos x = 0.643$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 6 Solve $\cos x = 0.411$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 7 Find the inverse function $f(x) = \frac{x+3}{2} + 3$	Question 8 Find the inverse function $f(x) = \sqrt{x+1}$
Question 9 Find the next term in the sequence 2, 6, 18, ...	Question 10 Find the next term in the sequence 6, 18, 54, ...	Question 11 Find the equation of the line passing through (-2, 4) and (0, 2)	Question 12 Find the equation of the line passing through (-3, 15) and (-4, 20)
Question 13 Solve using the quadratic formula $5x^2 + 9x + 3 = 0$	Question 14 Solve using the quadratic formula $3x^2 + 6x + 2 = 0$	Question 15 Factorise $x^2 + 8x + 12$	Question 16 Factorise $12x^2 - x - 6$
Question 17 Simplify $\frac{2x+1}{5} - \frac{x-3}{4}$	Question 18 Simplify $\frac{x-2}{3} - \frac{2x+1}{5}$	Question 19 Write down the first three terms of the sequence $x_1 = 4 \quad x_{n+1} = -x_n + 6$	Question 20 Write down the first three terms of the sequence $x_1 = 3 \quad x_{n+1} = -2x_n - 5$

Question 21
What does 'gradient' mean?

Score

Due date	Thursday 22 nd February 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA3.5

Name :

HAA3.5

Question 1 Simplify $3 \times 7\sqrt{3}$	Question 2 Simplify $2\sqrt{5} \times 5\sqrt{5}$	Question 3 Find the nth term: 0, 5, 10, 15	Question 4 Find the nth term $\frac{9}{10}, \frac{8}{11}, \frac{7}{12}, \dots$
Question 5 Solve $\tan x = 0.107$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 6 Solve $\cos x = 0.103$ for $0^\circ < x < 360^\circ$ (correct to 1 d.p)	Question 7 Find the inverse function $f(x) = 4 - \frac{x}{2}$	Question 8 Find the inverse function $f(x) = 5 - \frac{x+1}{3}$
Question 9 Find the next term in the sequence 6, 30, 150, ...	Question 10 Find the next term in the sequence 5, 10, 20, ...	Question 11 Find the equation of the line passing through (-4, -15) and (1, 0)	Question 12 Find the equation of the line passing through (-1, -3) and (-2, -5)
Question 13 Solve using the quadratic formula $x^2 + 5x + 1 = 0$	Question 14 Solve using the quadratic formula $x^2 - 7x + 10 = 0$	Question 15 Factorise $x^2 + 2x - 24$	Question 16 Factorise $12x^2 - 19x + 5$
Question 17 Simplify $\frac{1-x}{5} - \frac{2x-1}{4}$	Question 18 Simplify $\frac{2x-4}{3} + \frac{2x+1}{5}$	Question 19 Write down the first three terms of the sequence $x_1 = 4 \quad x_{n+1} = 2x_n - 4$	Question 20 Write down the first three terms of the sequence $x_1 = 4 \quad x_{n+1} = 3x_n - 3$

Question 21

What does 'root' mean?

Score

Due date	Thursday 29 th February 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.1

Name :

HAA4.1

Question 1 Expand and simplify $(x + 3)(x + 2)(x + 1)$	Question 2 Expand and simplify $(x - 3)(x + 2)(x + 1)$	Question 3 r is directly proportional to s. When $r = 36$, $s = 9$. Find the value of s when $r = 40$	Question 4 a is directly proportional to b. When $a = 42$, $b = 7$. Find the value of a when $b = 15$
Question 5 Simplify $3(x + 4) + 2(x - 3)$	Question 6 Simplify $\frac{4x+6}{2}$	Question 7 If $f(x) = 11 - x$ find the value of $f(4)$	Question 8 If $f(x) = 27 - 2x^2$ find the value of $f(-5)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 + 6x + 12$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 + 8x + 10$	Question 11 Find the equation of the line parallel to the line $y = 2x - 6$ passing through the point (2, 6)	Question 12 Find the equation of the line parallel to the line $y - 4x = 1$ passing through the point (2, 3)
Question 13 Simplify $\frac{x}{3} - \frac{x}{5}$	Question 14 Simplify $\frac{x+2}{4} - \frac{x+1}{5}$	Question 15 Sketch the graph of $y = x^2$	Question 16 Sketch the graph of $y = x - 1$
Question 17 A force of 132 N acts over an area of 12 m^2 . What is the pressure?	Question 18 Distance = 5 km, Time = 15 mins , speed = ? km/h	Question 19 Rationalise the denominator $\frac{4}{\sqrt{2}}$	Question 20 Rationalise the denominator $\frac{4}{\sqrt{3} + 2}$

Question 21
What is a sector?

Score

Due date	Thursday 7 th March 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.2

Name :

HAA4.2

Question 1 Expand and simplify $(x-2)(x-2)(x+1)$	Question 2 Expand and simplify $(x+1)(x-1)(x+3)$	Question 3 r is directly proportional to s. When $r = 140$, $s = 20$. Find the value of r when $s = 13$	Question 4 r is directly proportional to s. When $r = 234$, $s = 18$. Find the value of r when $s = 12$
Question 5 Simplify $4(x-2) - 3(x-3)$	Question 6 Simplify $\frac{(x+6)(x+1)}{5x-2-4x+3}$	Question 7 If $f(x) = 30 + 5x$ find the value of $f(-3)$	Question 8 If $f(x) = 20 + 4x^2$ find the value of $f(-2)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 - 10x - 25$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 - 4x + 8$	Question 11 Find the equation of the line parallel to the line $y = 5x - 6$ passing through the point $(-1, 3)$	Question 12 Find the equation of the line parallel to the line $y - 2x = 1$ passing through the point $(2, -3)$
Question 13 Simplify $\frac{2x}{3} - \frac{x}{4}$	Question 14 Simplify $\frac{x-2}{3} - \frac{x+1}{5}$	Question 15 Sketch the graph of $y = 2x + 2$	Question 16 Sketch the graph of $y = 2x^2$
Question 17 A block has a mass of 125g and a density of 50 g/cm^3 . Calculate the volume.	Question 18 A force of 144 N acts over an area of 12 m^2 . What is the pressure?	Question 19 Rationalise the denominator $\frac{3}{\sqrt{3}}$	Question 20 Rationalise the denominator $\frac{4\sqrt{2}}{\sqrt{2}-1}$

Question 21
What is a segment?

Score

Due date	Thursday 14 th March 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.3

Name :

HAA4.3

Question 1 Expand and simplify $(x + 2)(x - 2)(x - 1)$	Question 2 Expand and simplify $(x + 4)(x - 3)(x + 1)$	Question 3 a is directly proportional to b. When a = 224, b = 16. Find the value of a when b = 12	Question 4 r is directly proportional to s. When r = 180, s = 15. Find the value of r when s = 11
Question 5 Simplify $4(x - 1) - 2(x + 1)$	Question 6 Simplify $\frac{(x-2)(x-1)}{2(x-1)-x}$	Question 7 If $f(x) = 26 - 3x$ find the value of $f(-3)$	Question 8 If $f(x) = 20 - x$ find the value of $f(1)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 - 2x + 5$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 + 4x - 10$	Question 11 Find the equation of the line parallel to the line $y = 5x - 1$ passing through the point $(-3, 2)$	Question 12 Find the equation of the line parallel to the line $2y + 6x = 1$ passing through the point $(2, 2)$
Question 13 Simplify $\frac{5x}{3} - \frac{x}{2}$	Question 14 Simplify $\frac{x+6}{7} - \frac{x-1}{5}$	Question 15 Sketch the graph of $x + y = 12$	Question 16 Sketch the graph of $y = 2 - x$
Question 17 A block has a volume of 70 cm^3 and a density of 3.5 g/cm^3 . Calculate the mass	Question 18 Distance = 55 km, Time = 1 hour 15 mins , speed = ? km/h	Question 19 Rationalise the denominator $\frac{10}{\sqrt{5}}$	Question 20 Rationalise the denominator $\frac{4\sqrt{5}}{\sqrt{5} - 1}$

Question 21
What does rationalise mean?

Score

Due date	Thursday 21 st March 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.4

Name :

HAA4.4

Question 1 Expand and simplify $(x-1)(x-4)(x+1)$	Question 2 Expand and simplify $(x+5)(x+1)(x-2)$	Question 3 r is directly proportional to s. When $r = 208$, $s = 16$. Find the value of s when $r = 195$	Question 4 r is directly proportional to s. When $r = 30$, $s = 10$. Find the value of s when $r = 36$
Question 5 Simplify $4(x-1) - (2x+3)$	Question 6 Simplify $\frac{x^2-x-2}{x-2}$	Question 7 If $f(x) = 21 + 2x^2$ find the value of $f(-2)$	Question 8 If $f(x) = 25 - x$ find the value of $f(5)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 - 10x + 25$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 + 12x + 26$	Question 11 Find the equation of the line parallel to the line $y = 6 - x$ passing through the point $(5, -1)$	Question 12 Find the equation of the line parallel to the line $3y + 9x = 1$ passing through the point $(-3, 2)$
Question 13 Simplify $\frac{x}{2} - \frac{2x}{5}$	Question 14 Simplify $\frac{x-2}{4} - \frac{x-2}{5}$	Question 15 Sketch the graph of $y = 10 - x$	Question 16 Sketch the graph of $y = x^2 - 3$
Question 17 A block has a mass of 680g and a density of 80 g/cm^3 . Calculate the volume.	Question 18 A force of 144 N acts over an area of 12 m^2 . What is the pressure?	Question 19 Rationalise the denominator $\frac{12}{\sqrt{3}}$	Question 20 Rationalise the denominator $\frac{4\sqrt{2}}{2\sqrt{2}-1}$

Question 21

What is indirect or inverse proportion?

Score

Due date	Thursday 28 th March 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.5

Name :

HAA4.5

Question 1 Expand and simplify $(x + 2)(x - 1)(x + 2)$	Question 2 Expand and simplify $(x + 4)(x - 3)(x + 2)$	Question 3 a is directly proportional to b. When a = 168, b = 12. Find the value of a when b = 10	Question 4 a is directly proportional to b. When a = 105, b = 7. Find the value of b when a = 195
Question 5 Simplify $4x(2x - 1) - x(2x - 1)$	Question 6 Simplify $\frac{x^2 - 4}{x + 2}$	Question 7 If $f(x) = 20 + 3x^2$ find the value of $f(-5)$	Question 8 If $f(x) = 28 - 4x$ find the value of $f(-4)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 - 2x - 1$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 - 8x - 4$	Question 11 Find the equation of the line parallel to the line $2y = 7 - 2x$ passing through the point $(-4, 1)$	Question 12 Find the equation of the line parallel to the line $4y - 2x = 1$ passing through the point $(-4, 2)$
Question 13 Simplify $\frac{5x}{2} - \frac{x}{5}$	Question 14 Simplify $\frac{2x-4}{4} - \frac{x-1}{3}$	Question 15 Sketch the graph of $y = \frac{1}{2}x + 1$	Question 16 Sketch the graph of $y = x^3$
Question 17 A block has a mass of 425g and a density of 50 g/cm^3 . Calculate the volume.	Question 18 A pressure of 8 N/m^2 results from a force of 144 N acting over an area x. Find x	Question 19 Rationalise the denominator $\frac{15}{3\sqrt{5}}$	Question 20 Rationalise the denominator $\frac{5\sqrt{2}}{1 + \sqrt{2}}$

Question 21
What is a vertex?

Score

Due date	Thursday 11 th April 2024
Name	



GCSE Maths homework 11r1

Year 11 terms 3 & 4

Knowledge Check
Homework Sheet HAA4.6

Name :

HAA4.6

Question 1 Expand and simplify $(x - 10)(x - 2)(x + 1)$	Question 2 Expand and simplify $(x + 2)(x - 1)(x - 3)$	Question 3 r is directly proportional to s. When $r = 136$, $s = 17$. Find the value of s when $r = 64$	Question 4 x is directly proportional to y. When $x = 35$, $y = 5$. Find the value of x when $y = 9$
Question 5 Simplify $4(x - 1) - 4(5 - x)$	Question 6 Simplify $\frac{x^2 + 6x + 5}{x + 1}$	Question 7 If $f(x) = 21 - 3x^2$ find the value of $f(-5)$	Question 8 If $f(x) = 30 - 4x$ find the value of $f(-4)$
Question 9 Find the coordinates of the vertex of the graph $y = x^2 - 4x + 6$	Question 10 Find the coordinates of the vertex of the graph $y = x^2 + 10x + 15$	Question 11 Find the equation of the line parallel to the line $4y = 8x - 1$ passing through the point $(-4, 1)$	Question 12 Find the equation of the line parallel to the line $4x + 2y = -3$ passing through the point $(-1, 5)$
Question 13 Simplify $\frac{7x}{3} - \frac{x}{7}$	Question 14 Simplify $\frac{5x+2}{4} - \frac{x-5}{3}$	Question 15 Sketch the graph of $x + y = 10$	Question 16 Sketch the graph of $y = 1 - x^2$
Question 17 Distance = 14 km, Time = 10 mins , speed = ? km/h	Question 18 A pressure of 8 N/m^2 results from a force of 144 N acting over an area x. Find x	Question 19 Rationalise the denominator $\frac{20}{5\sqrt{2}}$	Question 20 Rationalise the denominator $\frac{4\sqrt{3}}{2\sqrt{3} + 1}$

Question 21

Give an example of a recurring decimal

Score