MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt{9+4x\_{n}}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=2.$ |  |
| 2 | Using f(x) = 2x+3, g(x) = x2 and h(x)=10-3x work out the **composite function**1. fg(x)
2. Calculate hf(2)
 |  |
| 3 | What is the nth term of the following **sequence**4, 7, 12, 19, 28 |  |
| 4 | Expand and simplify the brackets(t-5)3 |  |
| 5 | A group of 80 people were asked if they liked different fruit. 38 said they liked apples, 42 like bananas, and 20 like cherries. 6 liked all 3 fruits. 20 people like apples and bananas, 10 of the people who liked cherries also liked bananas. 6 people like cherries and apples only.Draw a **Venn Diagram** showing this information |  |
| 6 | Here are the first and third term of a **Fibonnaci**-type sequence a, , a – 3, , .Each term is the sum of the previous 2 terms. Work out the fifth term |  |
| 7 | Calculate the distance travelled given in the **speed-time graph**. |  |
| 8 | James invests £2000 in a bank account with a **compound interest** rate of 1.3%.Write a calculation that would give you the amount he has after 5 years. |  |
| 9 | The equation of a circle is x2+y2= $\frac{1}{16}$What is the length of it’s radius? |  |
| 10 | Which of these is not the sine of an angle 0.5, -1, 0, 1.5 |  |
| Total out of  |  |

 Higher

MASTERS

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt[3]{x\_{n}+19}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=0.$ |  |
| 2 | Using f(x) = 2x+3, g(x) = x2 and h(x)=10-3x work out the **composite function**1. hh(x)
2. Calculate fg(5)
 |  |
| 3 | What is the nth term of the following **sequence**3, 8, 15, 24, 35 |  |
| 4 | Expand and simplify the brackets(x-5)(x2+2x-3) |  |
| 5 | 70 students eat only an apple or only a banana.$\frac{4}{5}$ of these 70 students eat only apples.The number of students that eat apples is three times the number that eat bananas.Complete the **Venn Diagram**  |  A B |
| 6 | Here are the first and third term of a **Fibonnaci**-type sequence 7, , a - b, , .Each term is the sum of the previous 2 terms. Work out the fifth term |  |
| 7 |  |  |
| 8 | James buys a new car for £15,000 with a **compound decay** rate of 17%.Write a calculation that would give you the value of the car after 7 years. |  |
| 9 | The equation of a circle is x2+y2=25What is the length of it’s radius? |  |
| 10 | Use inequality signs to show the range of possible values of this truncated measurement: 0.8m (1sf)  |  |
| Total out of  |  |

MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt{5x\_{n}+12}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=3.$ |  |
| 2 | Using f(x) = 2x+3, g(x) = x2 and h(x)=10-3x work out the **composite function**1. gf(x)
2. Calculate ff(2)
 |  |
| 3 | What is the nth term of the following **sequence**-1, 2, 9, 20, 35 |  |
| 4 | Expand and simplify the brackets(t+2)3 |  |
| 5 | Use **set notation** to describe: |  |
| 6 | Here are the second and third term of a **Fibonnaci**-type sequence ...... , 2a+b , 3aEach term is the sum of the previous 2 terms. Work out the first term |  |
| 7 | Calculate the acceleration in the first 5 seconds in the **speed-time graph**. |  |
| 8 | James invests £3000 in a bank account with a **compound interest** rate of 1.12%.Write a calculation that would give you the amount he has after 3 years. |  |
| 9 | The equation of a circle is x2+y2= $\frac{4}{49}$What is the length of it’s radius? |  |
| 10 | Which of these is not the cosine of an angle 0.5, -1, 0, 1.5 |  |
| Total out of 10 |  |

MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt[3]{2x\_{n}+7}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=1.$ |  |
| 2 | Using f(x) = 2x+3, g(x) = x2 and h(x)=10-3x work out the **composite function**1. gg(x)
2. Calculate hg(1)
 |  |
| 3 | What is the nth term of the following **sequence**4, 15, 32, 55, 84 |  |
| 4 | Expand and simplify the brackets(x+5)(x2-3x-5) |  |
| 5 | Use **set notation** to describe: |  |
| 6 | Here are the first and third term of a **Fibonnaci**-type sequence a, , a2 +a+2, , .Each term is the sum of the previous 2 terms. Work out the fifth term |  |
| 7 | Calculate the acceleration made in the first 5 hours |  |
| 8 | James buys a new car for £22,000 with a **compound decay** rate of 15.5%.Write a calculation that would give you the value of the car after 5 years. |  |
| 9 | The equation of a circle is x2+y2=144What is the length of it’s radius? |  |
| 10 | Use inequality signs to show the range of possible values of this truncated measurement: 0.47g (2dp)  |  |
| Total out of  |  |

MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt{13+8x\_{n}}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=5.$ |  |
| 2 | Using f(x) = 2x+3, g(x) = x2 and h(x)=10-3x work out the **composite function**1. fh(x)
2. Calculate hf(5)
 |  |
| 3 | What is the nth term of the following **sequence**-1, 0, 5, 14, 27 |  |
| 4 | Expand and simplify the brackets(t+3)(t-5)2 |  |
| 5 | Fill in the **Venn diagram** from the probability tree |  |
| 6 | Here are the second and third term of a **Fibonnaci**-type sequence …… , a3+a2-2 , a3+2a2+a – 5Each term is the sum of the previous 2 terms. Work out the first term |  |
| 7 | Calculate the distance travelled in the first 20 seconds given in the **speed-time graph**. |  |
| 8 | James invests £2500 in a bank account with a **compound interest** rate of 10.25%.Write a calculation that would give you the amount he has after 6 years. |  |
| 9 | The equation of a circle is x2+y2= $\frac{121}{64}$What is the length of it’s radius? |  |
| 10 | Use inequality signs to show the range of possible values of this truncated measurement: 0.003mm (1sf)  |  |
| Total out of  |  |

MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt[3]{2x\_{n}+9}$ to find $x\_{4}$ to 2 decimal places. Start with $x\_{0}=0.$ |  |
| 2 | Using f(x) = 3x+4, g(x) = x2 and h(x)=$\frac{1}{x}$ work out the **composite function**1. hg(x)
2. Calculate fg(5)
 |  |
| 3 | What is the nth term of the following **sequence**-4, -4, -2, 2, 8 |  |
| 4 | Expand and simplify the brackets(2x-5)(x2-2x-3) |  |
| 5 | 70 students eat only an apple or only a banana.$\frac{6}{7}$ of these 70 students eat only apples.The ratio for the number of students that eat apples to the number that eat bananas is 3:2.Complete the **Venn Diagram**  |  A B |
| 6 | Here are the second and third term of a **Fibonnaci**-type sequence …… , x+xy+y , y-2Each term is the sum of the previous 2 terms. Work out the first term |  |
| 7 | Given that the **speed-time graph** shows the motion of a sprinter completing a 200m race, calculate u. |  |
| 8 | James buys a new car for £7,779 with a **compound decay** rate of 9.8%.Write a calculation that would give you the value of the car after 2 years. |  |
| 9 | The equation of a circle is x2+y2=125What is the length of it’s radius?Simplify your answer |  |
| 10 | Use inequality signs to show the range of possible values of this truncated measurement: 0.739ml (3dp)  |  |
| Total out of  |  |

MASTERS

 Higher

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| Q | Question | Answer |
| 1 | Use the **iteration formula** $x\_{n+1}= \sqrt{2+3x\_{n}}$ to find $x\_{3}$ to 2 decimal places. Start with $x\_{0}=12.$ |  |
| 2 | Using f(x) = 3x+4, g(x) = x2 and h(x)=$\frac{1}{x}$ work out the **composite function**1. fg(x)
2. Calculate hf(2)
 |  |
| 3 | What is the nth term of the following **sequence**-4, 8, 26, 50, 80 |  |
| 4 | Expand and simplify the brackets(2t-5)3 |  |
| 5 | A vet surveys 100 of her clients. She finds that:25 own dogs,15 own cats and dogs, 11 own dogs and tropical fish,53 own cats, 10 own cats and tropical fish,7 own dogs, cats and tropical fish, 40 own tropical fish.Draw a **Venn Diagram** showing this information |  D C F |
| 6 | Here are the second and third term of a **Fibonnaci**-type sequence …… , (x-2)2, 2x2-4x+1Each term is the sum of the previous 2 terms. Work out the first term |  |
| 7 | Given that the **speed-time graph**. Shows the motion of a sprinter running a 200m race. Calculate his maximum speed to 2dp. |  |
| 8 | James invests £10,000 in a bank account with a **compound interest** rate of 3.33%.Write a calculation that would give you the amount he has after 8 years. |  |
| 9 | The equation of a circle is x2+y2= 12What is the length of it’s radius?Simplify your answer |  |
| 10 | Use inequality signs to show the range of possible values of this truncated measurement: 8.7g (2sf)  |  |
| Total out of  |  |