|  |  |  |
| --- | --- | --- |
| Q1a) For $f\left(x\right)=5x-2x^{2} $ find $f(4)$ | b) For $g\left(x\right)=4x^{2}-15$ find $g(-3)$ | c) For $h\left(x\right)=15+4x-x^{2}$ find $h(-2)$ |

**National 5 S4 October Assessment revision booklet (non-calculator)**

**Q2) Fully factorise the following:**

|  |  |  |
| --- | --- | --- |
| a) $5x^{2}-25xyz$ | b) $16x^{2}-49y^{2}$ | c) $2x^{2}-12x+10$ |
| d) $5x^{2}+x-4$ | e) $16x^{2}-8y^{2}$ | f) $9tx^{2}-81t$ |

**Q3) Expand and simplify the following:**

|  |  |  |
| --- | --- | --- |
| a) $\left(4x-5\right)^{2}$ | b) $(2x+1)(3x-2)$ | c) $(x+4)(2x^{2}-4x-3)$ |

**Q4) Calculate the following:**

|  |  |  |
| --- | --- | --- |
| a) 1$\frac{3}{5}+3\frac{3}{4}$ | b) $3\frac{1}{4}÷5\frac{1}{5}$ | c) $\frac{1}{5}×\left(\frac{3}{4}+1\frac{1}{3}\right)$ |
|  |  |  |

Q5a) Find the equation of a straight line passing through the point (4,8), with a gradient of -5.

 b) Find the equation of a straight line passing through the point (3, -4) and (5, 0).

 c) Find the equation of a straight line passing through points (0, -3) and (4,7).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| $$y$$ |  |  |  |  |  |  |  |

Q6) Copy and complete the table below, then by drawing a pair of axes and plotting the points, draw the straight line for the equation $y=3x-1.$



**Q7) Change the subject of the following formulae to** $x.$

|  |  |  |
| --- | --- | --- |
| 1. $T=\frac{xr^{2}}{5}$
 | 1. $B=tx^{2}-\sqrt{y}$
 | 1. $C=\frac{y}{t-x}$
 |

**Q8) Solve the following quadratic equations for** $x:$

|  |  |  |
| --- | --- | --- |
| 1. $x^{2}-7x-30=0$
 | 1. $5x=2x^{2}$
 | 1. $3x^{2}+4x-7=0$
 |

**Q9) Solve the following equations for** $x:$

|  |  |  |
| --- | --- | --- |
| 1. $4x+2=-4x+8$
 | 1. $5\left(5-x\right)=4(x+1)$
 | 1. $\frac{1}{3}\left(10x+25\right)=x-1$
 |

**Q10) Solve the following inequalities:**

|  |  |  |
| --- | --- | --- |
| 1. $-9x<18-6x $
 | 1. $-4c+8\geq 7c-23$
 | 1. $4\left(t+5\right)\leq 5(2t-6)$
 |

**Q11) Determine whether or not the following triangles are right-angled. Show your working.**

****

b)

a)

**Q12)**



****

**Q13) Calculate the perimeter of the following shape.**