

Name:

Tutor Group:

Thomas Hardy School Maths Summer Task

- Due in Friday 11th September.
- Answers in the boxes on this sheet.
- To be done without a calculator.
- Workings on paper.
- All stapled together.
- Please put your name on it.

1) Factorise and hence solve the following:

a) $x^2 + 8x + 7 = 0$

Answer:

b) $3x^2 + 17x = 6$

Answer:

c) $x^2 - 16 = 0$

Answer:

2) Solve:

a) $15x - 4 = x + 80$

Answer:

b) $\frac{2x}{3} + 1 = 3$

Answer:

c) $\frac{9(2x + 20)}{5} = 18$

Answer:

d) $\frac{4x - 2}{5} = \frac{5x + 5}{7}$

Answer:

3) Complete the square for the: $x^2 + 4x - 2$

Answer:

4) Simplify the following: $\sqrt{40}$

Answer:

5) Expand, and simplify: $(5 + \sqrt{3})(5 - \sqrt{3})$

Answer:

6) Rationalise: $\frac{6}{5\sqrt{3}}$

Answer:

7) Given the 2 coordinates P(2, 1) and Q(7, -11) find the following

a) the length of the line PQ

Answer:

b) the gradient of the line PQ

Answer:

c) the midpoint of the line PQ

Answer:

8) Find the gradient and the y intercept for the following equations:

a) $y = 3x - 7$

Answer:

b) $3x + 2y - 5 = 0$

Answer:

9) Evaluate:

a) $27^{2/3}$

Answer:

b) 5^{-2}

Answer:

c) $16^{-3/4}$

Answer:

10) Simplify the following:

a) $12g^3 \times 2g^5$

Answer:

b) $\frac{(2\sqrt{x})^4}{8x}$

Answer:

11. Solve the following pairs of simultaneous equations.

$2x + 5y = 24$

$4x + 3y = 20$

Answer:

12. Make the variable in the square bracket the subject of each of the following:

a) $v = u + at,$ [a]

Answer:

b) $Ax + B = Cx + D$ [x]

Answer:

13. Use the quadratic formula to find the exact solution to: $x^2 + 4x + 2 = 0,$

Answer:

14. Solve the simultaneous equations:

$$y = x^2 - 2x$$

$$y = x + 4$$

Answer:

15. Where do the following lines meet ?

$$x^2 + y^2 = 20$$

$$y = x - 2$$

Answer:

16. What are the points of intersection for the following lines ?

$$xy = 8$$

$$y = x + 2$$

Answer: