F Summer Trials Practice 1

1. Evaluate $1 + \frac{2}{3} \div \frac{6}{7}$. $\boxed{\frac{16}{9}}$
2. Solve $1 - \frac{u-1}{2} = \frac{u}{3} - \frac{2+3u}{4}$. $\boxed{u = 24}$
3. The triangle ABC has a right angle at B. If $AB = 5$ and $ACB = 35°$.
   (a) Find AC. $\boxed{8.72}$
   (b) Find the area of the triangle. $\boxed{17.9}$
4. A triangle has sides 5 cm, 5 cm and 8 cm. Find the three angles in the triangle. $\boxed{106, 36.9, 36.9}$
5. A bag contains 5 yellow and 6 red counters. Three are removed from the bag at once.
   (a) Find the probability that they are all the same colour. $\boxed{\frac{2}{11}}$
   (b) Find the probability that there is exactly one red. $\boxed{\frac{4}{11}}$
6. Convert 120 m/s into km/h. $\boxed{432}$
7. If 1 GBP = 1.8 USD and 11 GBP = 14 EUR, how many EUR can you buy with 1240 USD? $\boxed{876.77}$
8. Solve $2x^2 = 8x$. $\boxed{x = 0 \text{ or } x = 4}$
9. Solve $2x^2 = 8$. $\boxed{x = \pm 2}$
10. Solve $3\pi x^2 + 30\pi = 21\pi x$. $\boxed{x = 2 \text{ or } x = 5}$
11. Solve $1 = \frac{8}{x} - \frac{9}{x+1}$. $\boxed{x = -4 \text{ or } x = 2}$
12. Calculate the following, giving all answers in standard form.
    (a) $(4 \times 10^{20}) \times (8 \times 10^{40})$. $\boxed{3.2 \times 10^{61}}$
    (b) $\frac{(4.2 \times 10^{20}) \times (2 \times 10^{30})}{4 \times 10^{-70}}$. $\boxed{2.1 \times 10^{120}}$
    (c) $(7 \times 10^{1000}) + (8 \times 10^{999})$. $\boxed{7.8 \times 10^{1000}}$
13. The gradient between $(p, 3)$ and $(\frac{1}{2}, 5)$ is -3. Find p. $\boxed{p = \frac{7}{6}}$
14. Find the equation of the line that passes through $(1, 3)$ and $(-5, 5)$, in the form $y = mx + c$. $\boxed{y = -\frac{1}{3}x + \frac{10}{3}}$
15. Find the equation of the line which runs parallel to $3x + 2y = 7$ and passes through $(-1, 4)$. Give your answer in the form $y = mx + c$. $\boxed{y = -\frac{3}{2}x + \frac{5}{2}}$
16. The mid point of $(p, 5)$ and $(6, q)$ is $(18, 0)$. Find p and q. $\boxed{p = 30, q = -5}$
17. The length between $(2, -3)$ and $(p, 0)$ is $\sqrt{45}$. Find the possible values of p. $\boxed{p = 8 \text{ or } p = -4}$
18. One term of the sequence $9, 13, 17, 21, 25, 29, \ldots$ is 97. Which one? $\boxed{23^{\text{rd}}}$
19. Find the thousandth term of the sequence $\frac{5}{2}, \frac{7}{9}, \frac{9}{28}, \frac{11}{65} \ldots$. $\boxed{\frac{2003}{1000000001}}$