

Practice Paper – Non-Calculator – Solutions

1) $\frac{3}{2}$

2) 36

3) 157 cm^2

4) a) $(x - 3)^2 + 6$

b) (3, 6)

5) $x = \sqrt[3]{\frac{y-c}{a}}$

6) a) $m = 2$

b) $y = 2x - 5$

c) $k = 1$

7) 102°

8) $x = 120^\circ, x = 240^\circ$

9) a) $x = 78.6^\circ$

b) 92.2 cm^2

10) £23

11) $\frac{4}{a^2}$

12) $\frac{p-2q}{3}$

13) a) $25\sqrt{2}$

b) $t = \frac{1}{2}$

14) Roots are at $(-2, 0)$ and $(6, 0)$

Y-Intercept is at $(0, -12)$

Turning point is at $(2, -16)$

15) $x = 3.5$

Practice Paper – Calculator – Solutions

1) $12x^2 + 6x - 8$

2) 20.1°

3) a) 0.524 cm^3

b) 0.34 cm

4) a) $3n + 2b = 145$

b) $5n + 3b = 240$

c) £5

5) a) Mean = 73

S.D. = 10.5

b) The average price of the milk is the same in the local shops and supermarkets.

The price of milk is more consistent in the supermarkets.

6) 32 cm^2

7) $x = 0.3, x = -1.8$

8) $\sin^2 x$

9) $x = 120^\circ, x = 240^\circ$

10) $5m$

11) 282°

12) Length = 90 cm so the umbrella will fit.

13) $\frac{19 - x}{(x - 3)(x + 5)}$

14) 191.4 m

National 5 Maths – Key Skills Practice – Solutions

1) a) $10a - 17$

b) $-2x^2 - 7x$

c) $2x^2 - 2x - 3$

2) a) $(x - 6)(x - 2)$

b) $(x + 6)(x - 3)$

c) $(x - 5)(x + 4)$

3) a) $t = \sqrt{\frac{s-r}{3}}$

b) $t = s^2 - 3$

c) $t = 2s^2 + 2$

4) a) $\frac{(x-4)}{(x-3)}$

b) $\frac{(a-2)}{(a+3)}$

c) $\frac{a-3}{a+6}$

5) a) $\frac{x+3}{(x-1)(x+1)}$

b) $\frac{p-4}{p(p-2)}$

c) $\frac{8x-4}{(x-3)(x+1)}$

6) a) $y = 4$

c) $x = \frac{7}{2}$

b) $b = \frac{4}{5}$

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

7) a) $r = -\frac{19}{4}$

c) $x = -\frac{15}{14}$

e) $k > -4$

b) $z = 3$

d) $x = \frac{3}{7}$

f) $x > \frac{4}{5}$

8) a) $x = 4, y = -1$

b) $x = -1, y = 1$

9) a) $6\sqrt{2}$

b) 10

10) a) $\frac{\sqrt{3}}{6}$

b) $\sqrt{6}$

11) a) $\frac{1}{2^3}$

b) 3^5

12) a) 9

b) 125

13) a) $x = -2, x = 8$

c) $x = -7, x = 7$

b) $x = 2, x = 8$

d) $x = -4, x = 6$

14) a) 2 real and distinct roots

b) No real roots

15) a) $(-3, 0)$ and $(2, 0)$

c) $(-5, 0)$ and $(-3, 0)$

b) $(-3, 0)$ and $(0, 0)$

d) $(-2, 0)$ and $(5, 0)$

16) a) $(3, 1)$

b) $(2, -2)$

17) a) $y = (x - 4)^2 - 13$

b) $y = (x + 3)^2 + 8$

$(4, -13)$

$(-3, 8)$

18) a) $x = 45^\circ, x = 225^\circ$

b) $x = 57.8^\circ, x = 302.2^\circ$

c) $x = 70.5^\circ, x = 289.5^\circ$

19) a) $y = -x + 7$

b) $y = 3x$

20) a) y-intercept is $(0, -4)$

b) y-intercept is $(0, 18)$

x-intercept is $(2, 0)$

x-intercept is $(-\frac{2}{3}, 0)$

21) 20.75

22) Mean is 37.7

Standard deviation is 24.3

23) In the second week, her average time is faster since the mean is lower than in the first week. In the second week, her times are more consistent since the standard deviation is lower.

24) a) 18.2 cm^2

b) 282 cm^2

25) a) $ABC = 74^\circ$

b) $y = 40.1^\circ$