

Intermediate 2 - Unit 3 - Practice NAB 3.

Outcome 1

1. Express $\frac{(x+3)(2x-2)}{(x+3)^2}$ in its simplest form. (1)

2. Simplify: (a) $\frac{7}{x} + \frac{2}{x}$ (b) $\frac{3}{a} - \frac{3}{b}$ (c) $\frac{4n}{k} \times \frac{m}{3}$ (d) $\frac{h}{2} \div \frac{g}{e}$ (4)

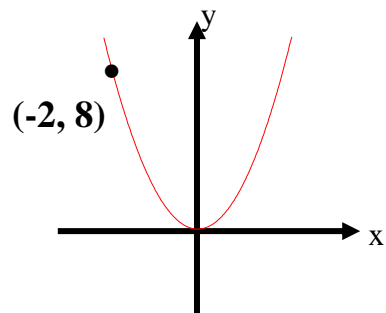
3. Change the subject of the formula to a: $d = ab - c$ (2)

4. Simplify: (a) $\sqrt{50}$ (b) $\frac{\sqrt{36}}{\sqrt{49}}$ (3)

5. Simplify: (a) $\frac{y^2 \times y^5}{y^4}$ (b) $2b^{\frac{-3}{2}} \times 3b^{\frac{5}{2}}$ (4)

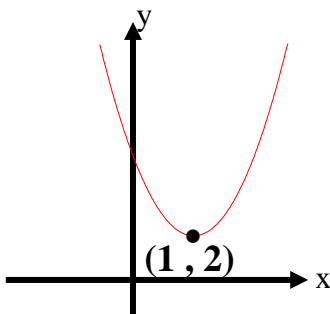
Outcome 2

6. The graph shows a function of the form $y = kx^2$. Write down its equation.



(1)

7.

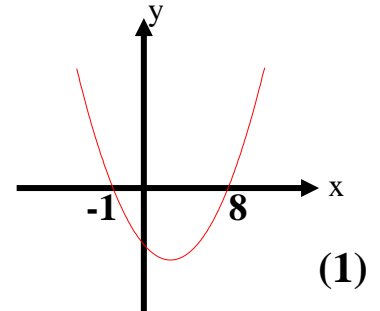


The equation of the quadratic function shown is of the form $y = (x - a)^2 + b$.

Write down its equation. (2)

8. A quadratic function has the equation $y = (x - 4)^2 - 5$ write down:
- a) the equation of its axis of symmetry. (1)
- b) the coordinates of the turning point and state whether it's a max or min. (2)

9. Use this graph to solve the equation $x^2 - 3x - 10 = 0$



10. Solve $y = x^2 - 7x - 8$ by factorization. (2)

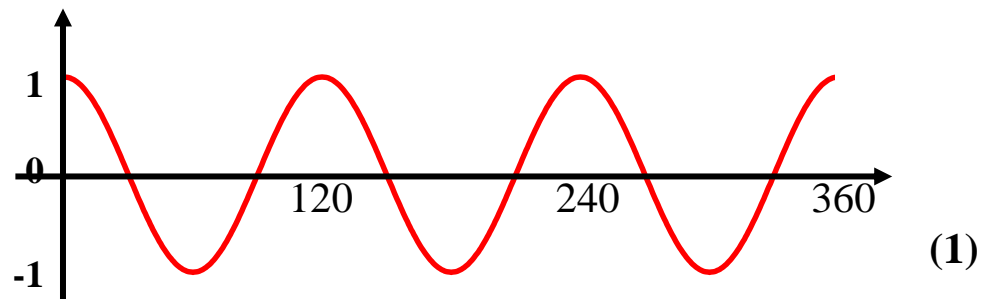
11. Use the quadratic formula to solve $y = x^2 - 3x - 5$ (4)

Outcome 3

12. Sketch the graph of $y = 2\sin 3x^\circ$ for $0^\circ \leq x \leq 360^\circ$ (2)

13. This diagram shows the graph of $y = a\cos bx^\circ$ for $0^\circ \leq x \leq 360^\circ$

Write down the value of b.



14. Solve: $6\cos x^\circ - 3 = 0$, for $0^\circ \leq x \leq 360^\circ$ (3)

Intermediate 2 - Unit 3 - Practice NAB 3 Solutions

Outcome 1 - You need 9 out of 14 to pass.

1. $\frac{(2x - 2)}{(x + 3)}$

2. a) $\frac{9}{x}$ (b) $\frac{3b - 3a}{ab}$ (c) $\frac{4mn}{3k}$ (d) $\frac{eh}{2g}$

3. $d = ab - c$ 4. a) $5\sqrt{2}$ (b) $\frac{6}{7}$
 $d + c = ab$
 $a = \frac{d + c}{b}$

5. a) y^3 (b) $6b$

Outcome 2 - You need 9 out of 13 to pass.

6. $y = kx^2$ 7. $y = (x - a)^2 + b$
 $8 = kx(-2)^2$ $y = (x - 1)^2 + 2$
 $8 = kx4$
 $k = 2$
 $y = 2x^2$

8. a) $x = 4$ (b) Min @ (4, -5)

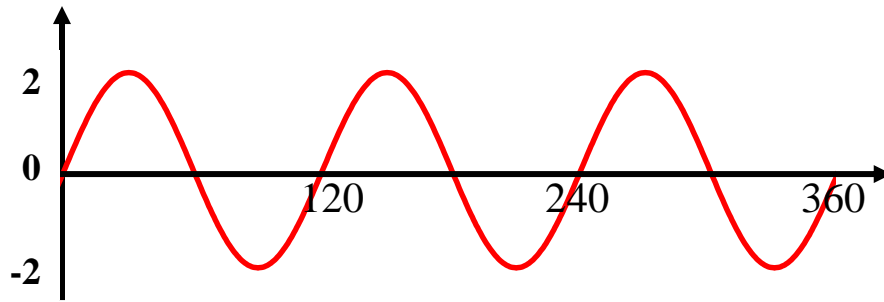
9. $x = -1, 8$

10. $(x - 8)(x + 1)$ so $x = -1, 8$

11. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $x = \frac{3 \pm \sqrt{(-3)^2 - 4(1)(-5)}}{2}$
 $x = \frac{3 \pm \sqrt{29}}{2}$
 $x = 4.19, -1.19$

Outcome 3 - You need 4 out of 6 to pass.

12.



13. $b = 3$

14. $6\cos x^\circ - 3 = 0$
 $6\cos x^\circ = 3$
 $\cos x^\circ = \frac{1}{2}$
 $x^\circ = 60 \text{ or } 360 - 60$
 $= 60, 300^\circ$