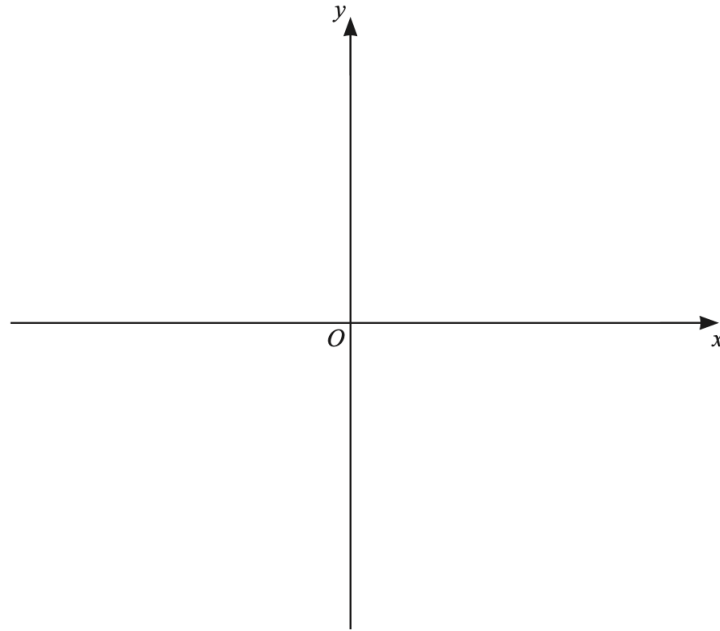


Chapter (5) Equations, inequality and graphs

0606/12/F/M/20

1. (a) On the axes below, sketch the graph of $y = -3(x - 2)(x - 4)(x + 1)$, showing the coordinates of the points where the curve intersects the coordinate axes.

[3]

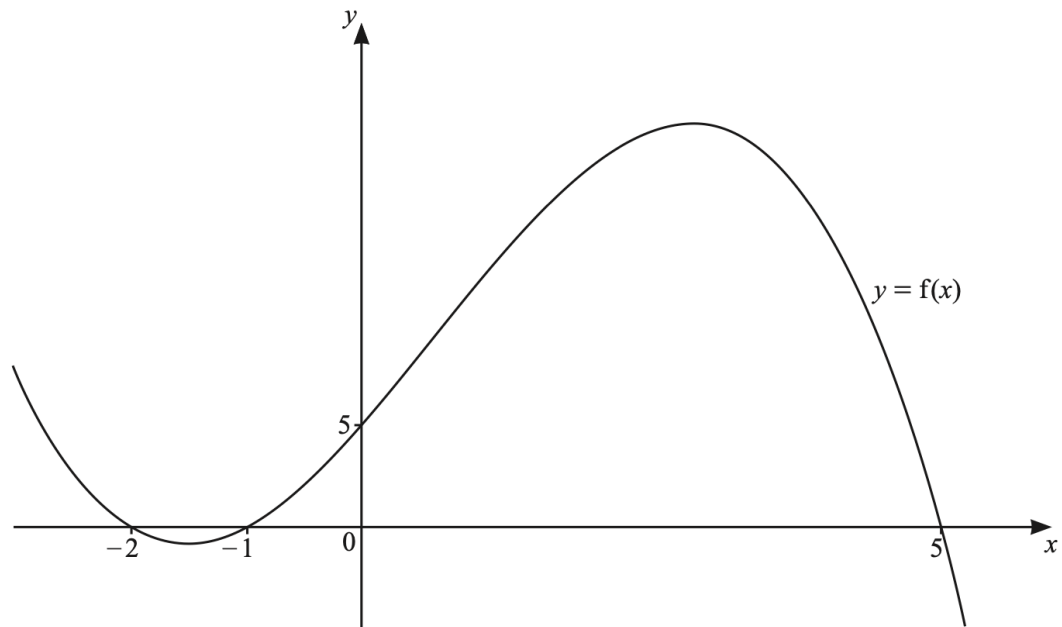


- (b) Hence find the values of x for which $-3(x - 2)(x - 4)(x + 1) > 0$.

[2]

0606/11/M/J/20

2. The diagram shows the graph of a cubic curve $y = f(x)$.



(a) Find an expression for $f(x)$.

[2]

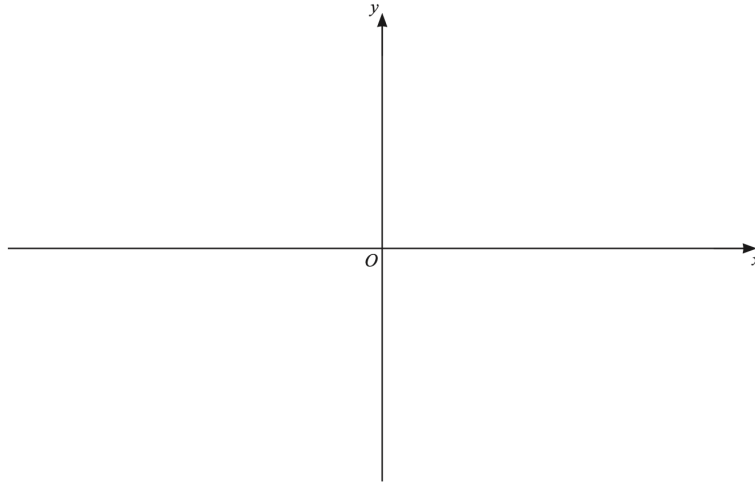
(b) Solve $f(x) \leq 0$.

[2]

0606/12/M/J/20

3. On the axes below, sketch the graph of $y = |(x - 2)(x + 1)(x + 2)|$ showing the coordinates of the points where the curve meets the axes.

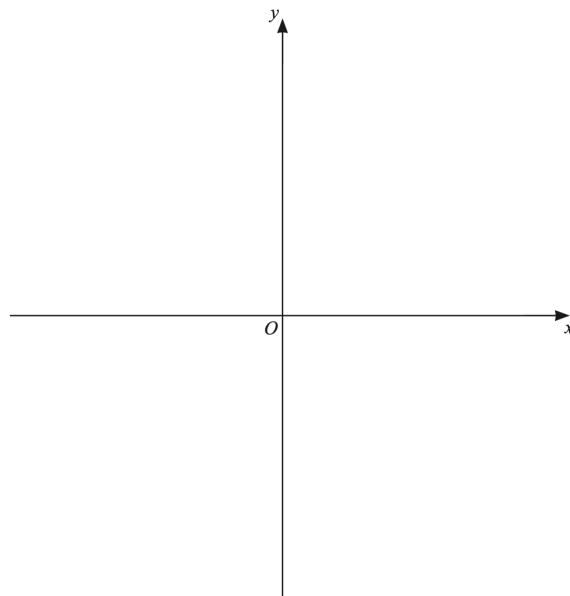
[3]



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4. (a) On the axes below, sketch the graph of $y = -(x + 2)(x - 1)(x - 6)$, showing the coordinates of the points where the graph meets the coordinate axes.

[2]

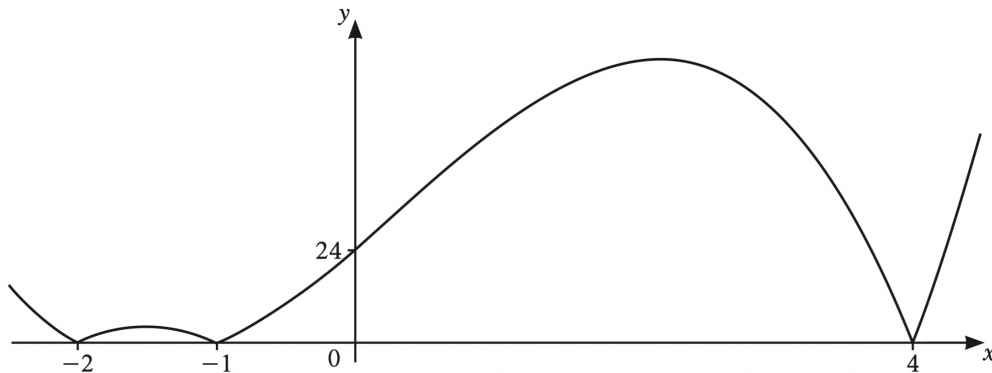


(b) Hence solve $-(x + 2)(x - 1)(x - 6) \leq 0$.

[2]

0606/11/O/N/20

5.

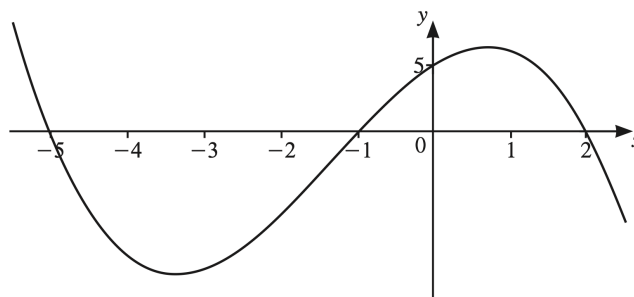


The diagram shows the graph of $y = |p(x)|$ where $p(x)$ is a cubic function. Find the two possible expressions for $p(x)$.

[3]

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6.



The diagram shows the graph of $y = f(x)$, where $f(x)$ is a cubic polynomial.

(a) Find $f(x)$.

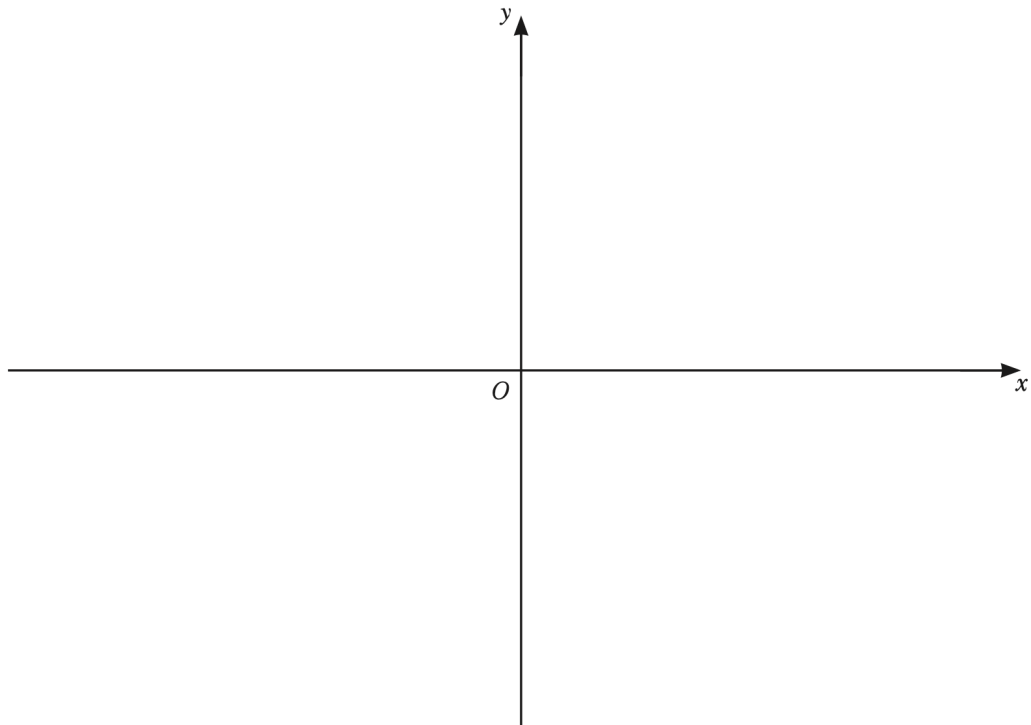
[3]

(b) Write down the values of x such that $f(x) < 0$.

[2]

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7.(a) On the axes below, sketch the graph of $y = (x - 2)(x + 1)(3 - x)$ stating the intercepts on the coordinate axes.



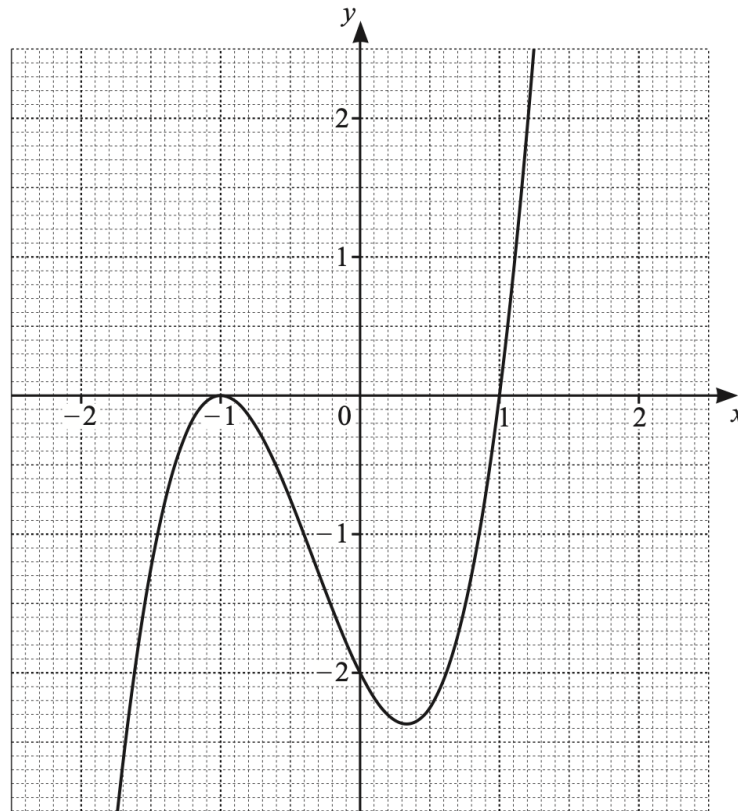
[3]

(b) Hence write down the values of x such that $(x - 2)(x + 1)(3 - x) > 0$.

[2]

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8.



The diagram shows the graph of $y = f(x)$, where $f(x) = a(x + b)^2(x + c)$ and a , b and c are integers.

(a) Find the value of each of a , b and c .

[2]

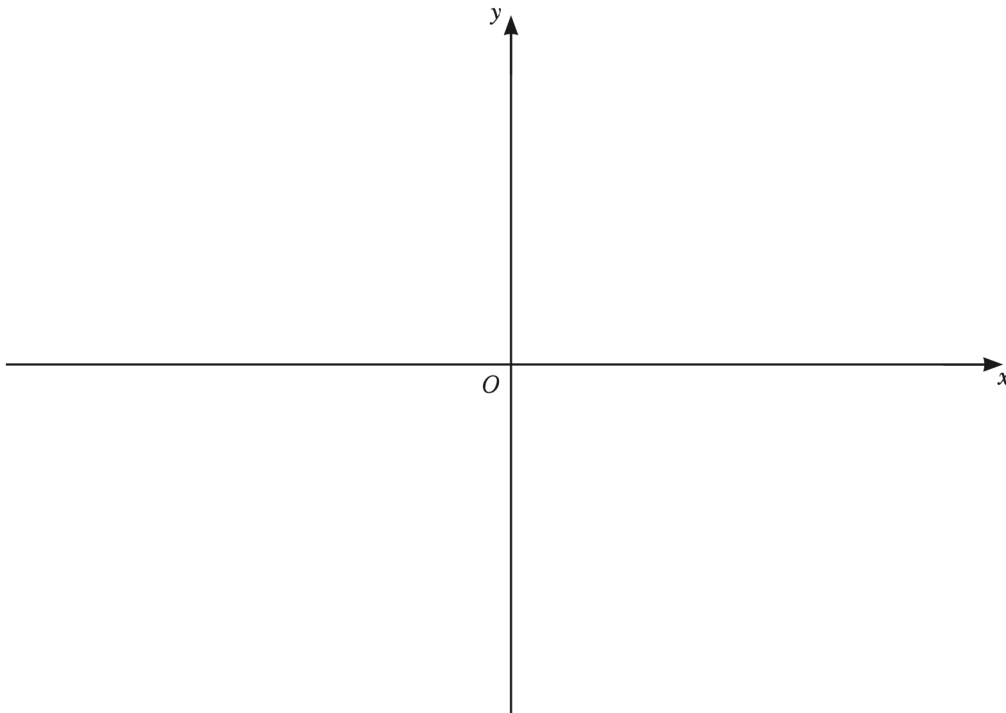
(b) Hence solve the inequality $f(x) \leq -1$.

[3]

0606/11/M/J/21

9. (a) On the axes, sketch the graph of $y = 5(x + 1)(3x - 2)(x - 2)$, stating the intercepts with the coordinate axes.

[3]



(b) Hence find the values of x for which $5(x + 1)(3x - 2)(x - 2) > 0$.

[2]

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10. The three roots of $p(x) = 0$ where $p(x) = 5x^3 + ax^2 + bx - 2$ are $x = \frac{1}{5}$, $x = n$ and $x = n + 1$, where a and b are positive integers and n is a negative integer. Find $p(x)$, simplifying your coefficients.

[5]