Question 1

1 point Simplify as much as possible the expression $\dfrac{(x^3y^{1/2})^{1/3}}{y^{1/3}}$. Answer : $\boxed{xy^{-1/6}}$

Question 2

1 point Simplify $\dfrac{x-3}{x-2}+\dfrac{x-3}{x+3}+\dfrac{-3x+11}{x^2+x-6}$. Answer : $\boxed{\dfrac{2(x-2)}{(x+3)}}$

Question 3

1 point If $y=\sqrt[3]{\dfrac{2x+5}{7}}$, write x as a fuction of y. Answer : $\boxed{x=(7y^3-5)/2}$

Question 4

1 point Using long division, write $\dfrac{x^3+3x^2-3}{x+2}$ in the form $p(x)+r(x)/q(x)$ with the degree of r smaller than the degree of q.

Answer : $\boxed{x^2+x-2+\frac{1}{x+2}}$

Question 5

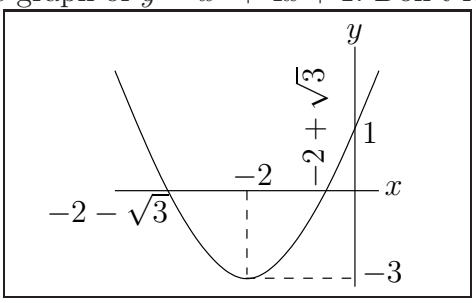
1 point Find the roots of the polynomial x^2+4x+1 (i.e. solve $x^2+4x+1=0$).

Answer : $\boxed{-2\pm\sqrt{3}}$

Question 6

1 point Sketch the graph of $y=x^2+4x+1$. Don't forget to indicate the intersection with the axes.

Answer :



Question 7

1 point Find the value of c in the polynomial $4x^2-20x+c$ such that the roots are equal.

Answer : $\boxed{c=25}$

Question 8

1 point Find the values of x such that $x^2-7x+10<0$. Answer : $\boxed{2<x<5}$

Question 9

1 point Find the values of x such that $\dfrac{2}{x-1}>\dfrac{1}{x+3}$. Answer : $\boxed{-7<x<-3 \text{ and } x>1}$

Question 10

1 point Find the domain of the function $y=f(x)=\left(\dfrac{4x-5}{3}\right)^{-1/2}$.

Answer ; $\boxed{x>5/4}$

Question 11

1 point Find the range of the function $y=f(x)=8-2x-x^2$.

Answer : $\boxed{x\leq 9}$

Question 12

1 point Find the simplest form of $(f \circ g)(x)$, where $f(x) = \sqrt{x^2 - 2}$ and $g(x) = \sqrt{x^2 + 2}$.

Answer : $\boxed{(f \circ g)(x) = |x|}$

Question 13

1 point Find the value of x such that $|x^2 - 5| = 5$. Answer : $\boxed{0 \text{ or } \pm\sqrt{10}}$

Question 14

1 point Find the values of x such that $\log_7(49^x) = 5$. Answer : $\boxed{5/2}$

Question 15

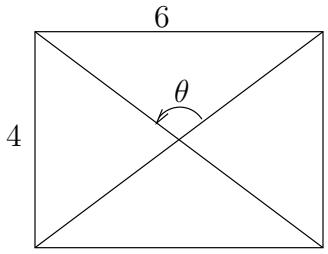
1 point Find the values of x such that $e^x + 5e^{-x} = 6$. Answer : $\boxed{x = 0 \text{ and } x = \ln(5)}$

Question 16

1 point Find the values of x such that $\ln(4) - \ln(x) = \ln(5 - x)$. Answer : $\boxed{x = 1 \text{ and } x = 4}$

Question 17

1 point Find the cosinus of the angle θ in the following figure.



Answer : $\boxed{-\frac{5}{13}}$

Question 18

1 point If $\tan(\theta) = -1$, find all possible values of $\sin(\theta)$. Answer : $\boxed{\pm\frac{\sqrt{2}}{2}}$

Question 19

1 point If $\sin(\theta) = x$, find $\tan(\theta)$. Answer : $\boxed{\pm\frac{x}{\sqrt{1 - x^2}}}$

Question 20

1 point Find the slope of the line $5x - 3y + 5 = 0$. Answer : $\boxed{\frac{5}{3}}$

Question 21

1 point If $3x + y = 2$ and $x - 2y = 1$, find x and y. Answer : $\boxed{x = \frac{5}{7} \text{ and } y = -\frac{1}{7}}$