Quadratic Relations Test 3A

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Name **Answers**

7 8 9 10 **11** 12

Navigator | Assessment | Student | 25 min

Question: 1

The equation $(x-3)^2+a=0$ has roots: $x=1$ and $x=b$, the values of a and b are therefore:

a) a = 1 and b = 3 b) a = 0 and b = 3 c) a = 2 and b = 5

d) a = -2 and b = 5 e) **a = -4 and b = 5**

Question: 2

The factorised form of $y=(x-4)^2-9$ is:

a) $(x-2)(x-3)$ b) $(x+1)(x-7)$ c) **$(x-1)(x-7)$**

d) $(x+1)(x-7)$ e) $(x-1)(x+9)$

Question: 3

The range of values of b such that $y=x^2+bx+16$ has two distinct roots is:

a) $b>8$ b) **$|b|>8$** c) $b\geq 8$

d) $b\geq \pm 8$ e) $b\in R$

Question: 4

Which one of the following would result in irrational roots for $x^2+6x+c=0$

a) c = 0 b) c = 9 c) c = -27 d) c = -91 e) **c = -9**

Question: 5

The equation: $px^2+(p+q)x+q=0$ has rational roots when:

a) p = 2 and q = 3 b) p = -2 and q = 3

c) $p=\frac{2}{3}$ and $q=\frac{1}{2}$ d) p = -2 and q = -3

e) **All of the above**

Question: 6

The red rectangle is bound by triangle ABC. An expression for the area of the rectangle could be:

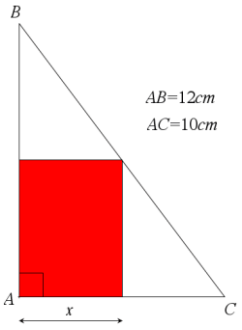
a) $Area=(12-x)(10-x)$

b) $Area=x(10-x)$

c) $Area=x(12-x)$

d) **$Area=\frac{6}{5}x(10-x)$**

e) $Area=\frac{5}{6}x(12-x)$



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Question: 7

Given that $4x^2+ax+b=0$ has one unique root and $a+b=21$ the values of a and b could be:

a) $a=4$ and $b=17$

b) $a=-28$ and $b=49$ OR $a=12$ and $b=9$

c) $a=-28$ and $b=49$ only

d) $a=12$ and $b=9$ only

e) $a=-4$ and $b=25$

Question: 8

Two consecutive positive integers are squared and added together, the result is 1105. The smaller of the two consecutive numbers is therefore:

$$n^2+(n+1)^2=1105$$
$$2n^2+2n-1104=0$$
$$2(n-23)(n+24)=0$$
$$n=23$$

The smaller number of the two (positive) integers is therefore 23.

Question: 9

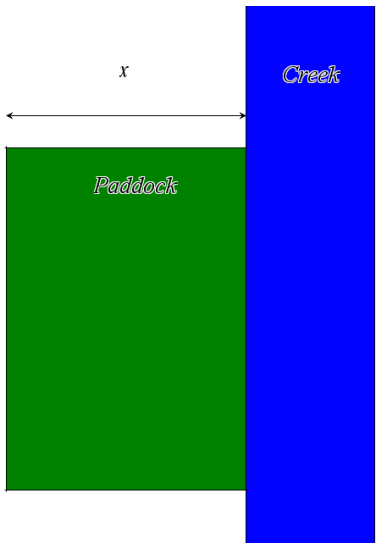
A right angled triangle has hypotenuse of length 29. The two shorter sides differ by just one unit. The shortest side is therefore equal to:

$$n^2+(n+1)^2=29^2$$
$$2(n-20)(n+21)=0$$
$$n=20$$

The smaller number of the two sides is therefore 20.

Question: 10

Forty metres of fencing is available to form a paddock that is bound on one side by a creek. Write an expression for the area of the paddock.



$Area=x(40-2x)$

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