IMAGINARY AND COMPLEX NUMBERS

1) Evaluate

a) i^{934} = ⬚

b) i^{210} = ⬚

c) i^{7} = ⬚

d) i^{25} = ⬚

e) i^{47} = ⬚

f) i^{73} = ⬚

c) i^{14} = ⬚

h) i^{675} = ⬚

2) Express in terms of i

a) $\dfrac{6 - \sqrt{-10}}{-2}$

b) $44 - \sqrt{-25}$

c) $\sqrt{-16} + \sqrt{-100} + \sqrt{25}$

d) $5 - 2\sqrt{-144}$

e) $\sqrt{81} + \sqrt{-49}$

f) $-8 - \sqrt{-7}$

3) Simplify

a) $(3 - 2i)(3 - 4i) - (5 + 4i)^{2}$

b) $(-8 - 7i)(5 + 2i) - (-3 + 4i)$

c) $\dfrac{1 - 4i^{3}}{5 + i^{7}}$

d) $i^{51}(i^{48} - i^{12} - 3)$

IMAGINARY AND COMPLEX NUMBERS

1) Evaluate

Answers

a) $i^{934} =$ | -1 | b) $i^{210} =$ | -1 | c) $i^7 =$ | -i | d) $i^{25} =$ | i |

e) $i^{47} =$ | -i | f) $i^{73} =$ | i | c) $i^{14} =$ | -1 | h) $i^{675} =$ | -i |

2) Express in terms of i

a) $\dfrac{6 - \sqrt{-10}}{-2}$

$-3 + \dfrac{\sqrt{10}}{2}i$

b) $44 - \sqrt{-25}$

$44 - 5i$

c) $\sqrt{-16} + \sqrt{-100} + \sqrt{25}$

$5 + 14i$

d) $5 - 2\sqrt{-144}$

$5 - 24i$

e) $\sqrt{81} + \sqrt{-49}$

$9 + 7i$

f) $-8 - \sqrt{-7}$

$-8 - \sqrt{7}i$

3) Simplify

a) $(3 - 2i)(3 - 4i) - (5 + 4i)^2$

$-8 - 58i$

b) $(-8 - 7i)(5 + 2i) - (-3 + 4i)$

$-23 - 55i$

c) $\dfrac{1 - 4i^3}{5 + i^7}$

$\dfrac{1}{26} + \dfrac{21}{26}i$

d) $i^{51}(i^{48} - i^{12} - 3)$

$3i$